

MERCK AND CO., INC.
126 EAST LINCOLN AVENUE
RAHWAY, UNION COUNTY, N.J.
EPA ID# NJD001317064

GENERAL INFORMATION AND SITE HISTORY

Merck and Co., Inc., headquartered in Rahway, New Jersey, is an active RCRA facility involved in the business of developing and producing health care products. Approximately 3500 people are employed at the facility, which began operations in 1903. The facility covers 210 acres and is situated in a densely populated urban area bordered by residential and industrial areas of Rahway and Linden. Approximately one-half of the site is within the City of Rahway and the remainder is within the City of Linden. Recent population figures for Rahway and Linden are 26,723 and 37,836, respectively.

SITE OPERATIONS OF CONCERN

Facility operations include administration and research, chemical production, and product development facilities used for production of pharmaceuticals and agricultural pesticides. Raw materials handled at the facility include a wide variety of organic and inorganic chemicals. Agricultural pesticides produced at the facility include thiabendazole (TBZ), a fungicide used for citrus crops. Waste types include chlorinated and non-chlorinated spent solvents, still bottoms from solvent recovery, reactive wastes, discarded commercial chemicals, and waste oils. The most common waste types include the following substances: acetone, acetonitrile, aniline, benzene, n-butanol, carbon disulfide, chlorobenzene, chloroform, o-dichlorobenzene, ethyl acetate, ethyl ether, formaldehyde, hexane, methanol, methyl ethyl ketone, 1,1,2,2-tetrachloroethane, toluene, magnesium sulfate, magnesium hydroxide, and spent nickel catalyst/sulfur cake from dichlorothiazide processing.

Merck was issued a Hazardous Waste Facility Permit (No. 2013C) on 2/20/87. RCRA-regulated units include 10 container storage areas and 9 tank storage areas. The 10 container storage areas can hold up to 3752 drums with overall capacity of 206,360 gallons. The 9 tank storage areas consist of 25 tanks with maximum storage capacity of 215,000 gallons. All container and tank storage areas have secondary containment, and either have no drains or drains which flow to sumps where material may be directed to the wastewater pretreatment unit. There are no records of any accidents or releases to the environment associated with the container and tank storage areas.

Merck discharges stormwater runoff and non-contact cooling water to Kings Creek and the Rahway River under NJPDES permit # NJ0002348. In addition, process wastewater is discharged to the Linden-Roselle Sewage Authority (LRSA) and Rahway Valley Sewage Authority (RVSA) under this permit. Wastewater generated from pharmaceutical manufacturing, boiler blowdown, non-contact cooling water, animal health formulations, pesticide formulations, and sanitary wastewater is pretreated onsite before discharge to LRSA. Wastewater from research and pilot operations along with sanitary wastewater is discharged without treatment to RVSA.

Principal areas of environmental concern include the wastewater pretreatment unit, 5 former underground tank storage areas, 2 former



landfill areas, and an underground pipe leak area. Areas of lesser environmental concern include 1 trash incinerator, 2 pathological incinerators, 19 former container storage areas, a former waste pile area, and a former solvent recycling area.

The wastewater pretreatment unit consists of 3 storage tanks (300,000 gallons each) which store aqueous waste from process areas and waste handling drains, and 2 neutralization tanks (13,000 gallons each). The influent wastewater may be corrosive prior to neutralization and contain low levels of raw materials, intermediates, and solvents. Samples of process effluent collected in 1983 showed the following substances to be present in the wastewater stream: benzene, dichlorobenzene, toluene, and carbon disulfide. In 1984 one of the storage tanks developed a leak from a corroded floor; soil samples collected in the vicinity of the leak indicated the presence of dichlorobenzene, phenols, cresols, and xylenes.

The 5 former underground tank storage areas were used to store chlorinated and non-chlorinated solvents for internal recovery or off-site disposal, and are identified as follows:

1. Tanks 852 and 853 (5,000 gallons each)
2. Tank 10M (10,000 gallons)
3. Tanks 103 and 104 (5,000 gallons each)
4. Building 73 tank farm (13 tanks with total capacity of 185,000 gallons)
5. Building 69 tank farm (37 tanks with total capacity of 265,000 gallons)

The above areas were in operation from 1950-1984, except for the Building 69 tank farm which began operations in 1940 and was discontinued in 1977. All of the tanks in these areas have been removed from the ground. Closure of all of the above areas, except for the Building 69 tank farm, was approved by NJDEP after closure requirements were certified by IT Corporation. The Building 69 tank farm failed a hydrostatic test, and soil in the area was shipped off-site for disposal (no analytical data or soil analyses area available). According to facility representatives visible soil contamination was evident in the area of Tanks 103 and 104 during tank removal, and soil samples collected by Merck indicated the presence of various organic solvents and fuel oil. Approximately 100 cubic yards of soil was subsequently shipped off-site for disposal.

The 2 onsite landfill areas (each approximately 200 feet in diameter) are known as the Building 53 landfill and the North Plant landfill. The Building 53 landfill received various industrial debris, empty containers, and ash material prior to 1960. Since that time the material was excavated and replaced with new fill material for a building which now occupies the site. The North Plant landfill received miscellaneous pharmaceutical products and waste filter cakes prior to 1960 and is currently inactive. It is not known whether or not the waste disposed of in these areas would be considered a hazardous waste or hazardous waste constituent.

The underground pipe leak area consists of a site where a release of industrial wastewater occurred from a leaking sewer line in 1986. The sewer line is used to transfer industrial wastewater to the onsite pretreatment unit. The release occurred over a 24 hour period before the

leak was discovered and sealed. Merck personnel estimated the quantity of release at 15 gallons per minute, which correlates to about 20,000 gallons over a 24 hour period. The release entered Kings Creek through cracks in the wall of a pipe which houses the creek near this location. Water samples collected in Kings Creek indicated the presence volatile organics in the surface water including benzene, chlorobenzene, and methylene chloride.

GROUNDWATER ROUTE

No site specific information regarding the geology or direction of groundwater flow beneath the facility could be obtained during the file review. There are no monitoring wells or production wells at the facility. In general, the Rahway area is underlain by approximately 30 feet of stratified drift deposits consisting of sand, gravel, and clay, and fractured bedrock of the Brunswick formation, with ground water at varying depths from 10 to 25 feet. Ground water movement in the Rahway area is toward the Rahway River and its branches, and through the valley extending from Rahway to the Arthur Kill. This would be in a south to southeast direction from the Merck facility.

The population of Linden and Rahway receive drinking water from the Rahway Water Department and the Elizabethtown Water Company, respectively. The Rahway Water Department obtains the majority of its water (over 90 percent) from the Rahway River and the remainder from a well adjacent to the river located about 1 mile west and upstream from the Merck facility. The well being used at this time is over 200 feet deep and taps the Brunswick formation. Several other wells (40-120' deep) at this location have been taken out of service due to contamination. There are several industrial supply wells within 3 miles of the facility which are on the order of 200-500 feet deep and also draw from the Brunswick formation, the principal aquifer unit in the area. There is a potential for ground water contamination beneath the Merck facility due to documented soil contamination and past waste management units and release events.

SURFACE WATER ROUTE

A small stream, Kings Creek, flow southeast through the facility to the Rahway River, located less than 1 mile to the southeast. The Rahway River empties into the Arthur Kill about 3 miles east of the site. Kings Creek flows through other industrial zones before entering the Rahway River. A number of spills and contaminated discharges into Kings Creek have been documented since the mid-1970's. An EPA Order issued in 1977 concerning NJPDES permit violations indicates the following substances released into Kings Creek over the period 1975-1977: ortho-dichlorobenzene, cobalt catalyst, ammonia, thiabendazole, sodium thiocyanate, and hydraulic oil. The underground sewer line leak in 1986 also resulted in a discharge of contaminants entering Kings Creek; surface water samples showed contamination with benzene (25 ppm), methylene chloride (20.9 ppm), chlorobenzene (14 ppm), chloroform (.430 ppm), and vinyl chloride (.408 ppm).

Merck discharges stormwater runoff and non-contact cooling water to Kings Creek and the Rahway River under the NJPDES-DSW permit. The permit expired

at the end of 1987; Merck has submitted a renewal application containing information on several stormwater discharges from the site which are not currently permitted, and additional data concerning the impact of its discharges on the surface water quality of Kings Creek and the Rahway River. The application is under review at the Division of Water Resources/Bureau of Industrial Waste Management. The facility received an acceptable rating during a compliance inspection conducted 3/10/88. Merck has set up a monitoring program whereby Kings Creek is inspected at least once per day for discoloration, sheen, pH, or unusual odor for early detection of any discharges into the creek. Surface water discharge points are monitored for volatile organics, oil and grease, carbon disulfide, antimony, nickel, and zinc. Wetland areas are located less than a mile away near the point where Kings Creek enters the Rahway River.

AIR ROUTE

The BAPC stack log listing indicates a total of 893 air permits at the facility including storage tanks, extractors, reactor vessels, scrubbers, a trash incinerator, and 2 pathological incinerators. The trash incinerator receives paper and non-hazardous pharmaceutical wastes with capacity of 30 tons per day. No records concerning any air sampling at the site were identified during the file review. Process emissions have resulted in a number of air releases and odor problems over the last 10 years.

Merck has been implicated as being one of the sources responsible for odor problems (characterized as cat urine odors) over Staten Island since 1979. A study conducted by the New York Department of Environmental Conservation (NYDEC) over the period 1979 to 1982 concluded that Merck was the source of cat urine odor emissions through accidental spills, equipment maintenance problems and untreated wastewater releases. In addition to the NYDEC, the NJDEP, the Interstate Sanitation Commission (ISC), the USEPA, and the Middlesex County Health Department have become involved in the matter. The thiabendazole (TBZ) manufacturing process at Merck generates low boiler waste which was identified as the source of the cat urine odor problem. Wastewater from this process is directed to the on-site pretreatment unit which discharges to the Linden-Roselle Sewage Authority. Carbon disulfide is the primary constituent of the low boiler waste and was believed to be the source of the problem. Merck discontinued discharge of the TBZ/low boiler waste to LRSA in 1986 and is now shipping the waste off-site for disposal. Other incidents related to air pollution during the past 5 years include several monochloroacetone releases from a distillation unit, hydrochloric acid vapors, and a release benzene product from a storage tank. The potential for air contamination exists due to the nature of operations and types of materials handled at the facility.

SOIL

Areas of potential soil contamination include the wastewater pretreatment unit, the 2 landfill areas, the underground sewer pipe leak area, and the 5 former underground tank storage areas.

One of the wastewater pretreatment unit storage tanks developed a leak in 1984, and soil samples showed contamination with phenol (189.6 ppm), total dichlorobenzene(s) (114.9 ppm), total trichlorophenol(s) (72.7 ppm), total cresol(s) (35.2 ppm), and total xylene(s) (1.06 ppm). Samples were collected by Merck personnel and analyzed by Atlantic Ecology Labs, Lakewood, N.J.

According to facility representatives, contaminated soil was removed from 2 of the 5 former underground tank storage areas, the Building 69 tank farm and Tanks 103 and 104. The Building 69 tank farm failed a hydrostatic test and soil in the area was shipped off-site for disposal during the time of the excavation in 1977 (no analytical data is available). Visible soil contamination was evident in the area of Tanks 103 and 104 during tank removal in 1984. Soil samples collected by Merck indicated the presence of benzene, chlorobenzene, ethyl benzene, chloroform, ortho-dichlorobenzene, toluene, tetrachloroethylene, trichloroethylene, and fuel oil. The concentrations of contaminants ranged from 54 to 3960 ppm and about 100 cubic yards of soil was shipped off-site for disposal (this information was obtained through verbal communication with facility personnel). No soil samples were collected in any of the other former underground tank storage areas.

DIRECT CONTACT

There have been no reported incidents of direct contact with hazardous substances onsite either by the surrounding population or employees. The potential for direct contact is low since the site is an active facility which maintains security. The site is surrounded by fences with all gates and entrances either monitored or locked.

FIRE AND EXPLOSIONS

There have been no reported incidents of fire or explosion at the subject facility, however the potential does exist due to the nature of operations and types of materials handled at the facility.

ADDITIONAL CONSIDERATION

The potential exists for damage to flora and fauna as well as contamination of food chain through migration of contaminated surface water and possible adverse impact on the Rahway River and nearby wetland areas. Potential for damage to off-site property exists through migration of contaminants via ground water or surface water routes. Merck operated an off-site landfill from 1960 to 1971 approximately 1 mile southeast of the facility at the end of Range Rd. in Linden. It should be noted that this landfill is a separate site and the subject of a preliminary assessment completed in 1987.

ENFORCEMENT ACTIONS

Enforcement actions initiated against Merck relate to air releases and past discharges to Kings Creek, as follows.

- 10/25/77: EPA Administrative Order for contaminated discharges to Kings Creek and numerous spill events involving ortho-dichlorobenzene, hydraulic fluid, cobalt catalyst, ammonia, thiabendazole, and sodium thiocyanate.
- 1980-1986: Middlesex County Health Department Notices of Violation for TBZ/low boiler emissions, hydrochloric acid vapors, monochloroacetone releases from distillation unit, and excessive black smoke from the trash incinerator.
- 8/25/86: NJDEP Administrative Consent Order for release of air contaminants from the TBZ process.

9/86: NJDEP Administrative Order for underground sewer pipe leak incident and discharge to Kings Creek.

RECOMMENDATIONS

There has been documented contamination of soil and surface water (Kings Creek) at the facility, and the potential for ground water contamination exists from various spill and leak events and past waste disposal practices. A study should be conducted to characterize ground water conditions and address whether or not a significant increase in pollutants is occurring in the ground water beneath the facility, as well as any migration of contaminants beyond the facility boundary. Areas of investigation should include the wastewater pretreatment unit, the North Plant Landfill, the underground sewer pipe leak area, and the 5 former underground tank areas. The impact of the facility on Kings Creek and the Rahway River is being addressed in the NJPDES permit; a renewal application is currently under review by NJDEP/DWR/BIWM.

A RCRA Facility Assessment was completed by NJDEP in 1986 and submitted to EPA. A remedial investigation was recommended which was to be incorporated into the NJPDES permit program under the direction of NJDEP/DWR/GWQC. The permit was still in the draft stage at the time of this writing. It is anticipated that the above referenced waste management units will be addressed under the RCRA Corrective Action program through a comprehensive remedial investigation, thus a medium priority is being assigned to this site.

Submitted by:

Edward Gaven

Edward Gaven, HSMS III
Bureau of Planning and Assessment



Preliminary Assessment

Merck and Co., Inc.
126 East Lincoln Avenue
Rahway, Union County, N.J.
EPA ID # NJD001317064



POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 1 - SITE INFORMATION AND ASSESSMENT

I. IDENTIFICATION

01 STATE 02 SITE NUMBER
NJ D001317064

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or distinctive name of site) Merck And Co., Inc.		02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER 126 East Lincoln Ave.			
03 CITY Rahway		04 STATE NJ	05 ZIP CODE 07065	06 COUNTY Union	07 COUNTY CODE 08 CONG DIST
09 COORDINATES LATITUDE 40 37 00 LONGITUDE 74 16 00		Block 1 Lot 1 210 Acres			
10 DIRECTIONS TO SITE (Starting from nearest public road) From: Route 1 north to Rahway; Merck & Co. is on left hand side					

III. RESPONSIBLE PARTIES

01 OWNER (If company) Merck & Co., Inc.		02 STREET (Business, mailing, residential) 126 East Lincoln Avenue			
03 CITY Rahway		04 STATE NJ	05 ZIP CODE 07065	06 TELEPHONE NUMBER (201) 574-4000	
07 OPERATOR (If known and different from owner) Same as owner		08 STREET (Business, mailing, residential)			
09 CITY		10 STATE	11 ZIP CODE	12 TELEPHONE NUMBER ()	
13 TYPE OF OWNERSHIP (Check one) <input checked="" type="checkbox"/> A. PRIVATE <input type="checkbox"/> B. FEDERAL: _____ (Agency name) <input type="checkbox"/> C. STATE <input type="checkbox"/> D. COUNTY <input type="checkbox"/> E. MUNICIPAL <input type="checkbox"/> F. OTHER: _____ (Specify) <input type="checkbox"/> G. UNKNOWN					

14 OTHER OPERATOR NOTIFICATION ON FILE (Check one)
☒ A. RCRA 3001 DATE RECEIVED: 11 19 80 MONTH DAY YEAR ☐ B. UNCONTROLLED WASTE SITE (RCRA 103 (c)) DATE RECEIVED: _____ MONTH DAY YEAR ☐ C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION <input checked="" type="checkbox"/> YES DATE 10 30 86 MONTH DAY YEAR <input type="checkbox"/> NO		BY (Check all that apply) <input type="checkbox"/> A. EPA <input type="checkbox"/> B. EPA CONTRACTOR <input checked="" type="checkbox"/> C. STATE <input type="checkbox"/> D. OTHER CONTRACTOR <input type="checkbox"/> E. LOCAL HEALTH OFFICIAL <input type="checkbox"/> F. OTHER: _____ (Specify) CONTRACTOR NAME(S): _____			
02 SITE STATUS (Check one) <input checked="" type="checkbox"/> A. ACTIVE <input type="checkbox"/> B. INACTIVE <input type="checkbox"/> C. UNKNOWN		03 YEARS OF OPERATION 1903 Present BEGINNING YEAR ENDING YEAR <input type="checkbox"/> UNKNOWN			
04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED Substances involved in release events include various chlorinated and non-chlorinated organic solvents.					

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION
Documented contamination of soil and surface water (Kings Creek) and potential ground water contamination from past waste management units and spill/leak events. Process emissions have resulted in numerous air releases and odor problems.

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION (Check one. If high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous Conditions and Incidents)
☐ A. HIGH (Inspection required promptly) ☒ B. MEDIUM (Inspection required) ☐ C. LOW (Inspect on time schedule basis) ☐ D. NONE (No further action needed. Complete current disposition form)

VI. INFORMATION AVAILABLE FROM

01 CONTACT Ali Chaudry	02 OF (Agency/Organization) NJDEP/DHWM/BHWE	03 TELEPHONE NUMBER (609) 292-9880		
04 PERSON RESPONSIBLE FOR ASSESSMENT Edward Gaven	05 AGENCY NJDEP	06 ORGANIZATION DHWM/BPA	07 TELEPHONE NUMBER (609) 292-4320	08 DATE 05 06 88 MONTH DAY YEAR



POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE NJ 02 SITE NUMBER D001317064

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- ☒ A. SOLID
☐ B. POWDER, FINES
☒ C. SLUDGE
☐ D. OTHER (Specify) _____
☐ E. SLURRY
☒ F. LIQUID
☐ G. GAS

02 WASTE QUANTITY AT SITE

(Measures of waste quantities must be independent)

TONS 1850/yr¹

CUBIC YARDS _____

NO. OF DRUMS _____

03 WASTE CHARACTERISTICS (Check all that apply)

- ☒ A. TOXIC
☐ B. CORROSIVE
☐ C. RADIOACTIVE
☐ D. PERSISTENT
☒ E. SOLUBLE
☐ F. INFECTIOUS
☒ G. FLAMMABLE
☒ H. IGNITABLE
☒ I. HIGHLY VOLATILE
☐ J. EXPLOSIVE
☒ K. REACTIVE
☐ L. INCOMPATIBLE
☐ M. NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE	80,000	lbs/yr	annual generation rate (Part B)
SOL	SOLVENTS	3,700,000	lbs/yr	annual generation rate (Part B)
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS	15,000	lbs/yr	annual generation rate (Part B)
ACD	ACIDS	unknown		
BAS	BASES	unknown		
MES	HEAVY METALS			

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
SOL	acetone	67-64-1			
SOL	acetonitrile	75-05-8			
SOL	aniline	62-53-3	tanks/drums		
SOL	benzene	71-43-2			
SOL	n-butanol	71-36-3			
SOL	carbon disulfide	75-15-0			
SOL	chlorobenzene	108-90-7			
SOL	chloroform	67-66-3			
SOL	cyclohexane	110-82-7			
SOL	o-dichlorobenzene	25321-22-6			
SOL	dimethyl sulfate	77-78-1			
SOL	ethyl acetate	141-78-6			
SOL	ethyl ether	60-29-7			
SOL	methanol	67-56-1			
SOL	methyl ethyl ketone	78-93-3			
SOL	methylene chloride	75-09-2			

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

RCRA Part A and B Permit Application (Ref. A)



POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE 02 SITE NUMBER

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

continued

01 PHYSICAL STATES (Check all that apply)

- ☐ A. SOLID ☐ E. SLURRY
☐ B. POWDER, FINES ☐ F. LIQUID
☐ C. SLUDGE ☐ G. GAS

☐ D. OTHER _____
(Specify)

02 WASTE QUANTITY AT SITE

(Measure of waste quantity
must be designated)

TONS _____

CUBIC YARDS _____

NO. OF DRUMS _____

03 WASTE CHARACTERISTICS (Check all that apply)

- ☐ A. TOXIC ☐ E. SOLUBLE ☐ I. HIGHLY VOLATILE
☐ B. CORROSIVE ☐ F. INFECTIOUS ☐ J. EXPLOSIVE
☐ C. RADIOACTIVE ☐ G. FLAMMABLE ☐ K. REACTIVE
☐ D. PERSISTENT ☐ H. IGNITABLE ☐ L. INCOMPATIBLE
☐ M. NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE			
SOL	SOLVENTS			
PSO	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS			

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently used CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/ DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
SOL	tetrachloroethane	127-18-4			
SOL	tetrahydrofuran	109-99-9	tanks/drums		
SOL	toluene	108-88-3			
OCC	phosgene	75-44-5			
OCC	pyridine	110-86-1			
ACD	fluoroacetic acid	114-49-0			
ACD	acids, miscellaneous				
BAS	magnesium hydroxide	1309-42-8			
IOC	magnesium sulfate	7487-88-9			
IOC	nickel catalyst	7440-02-0			

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (See Appendix for sources of information, e.g., state logs, article copies, reports)



POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE 02 SITE NUMBER

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☒ A. GROUNDWATER CONTAMINATION 02 ☐ OBSERVED (DATE: _____) ☒ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION
Potential exists due to prior spill and leak events and past waste management areas (e.g. former underground tanks, landfills).

01 ☒ B. SURFACE WATER CONTAMINATION 02 ☒ OBSERVED (DATE: 1975-1986) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION
Prior releases to Kings Creek include organic solvents, dichlorobenzene, thiabendazole, hydraulic fluid, sodium thiocyanate, and cobalt catalyst. Stormwater runoff and non-contact cooling water are discharged to Kings Creek and the Rahway River under the NJPDES permit.

01 ☒ C. CONTAMINATION OF AIR 02 ☒ OBSERVED (DATE: 1985-1986) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION
Fugitive emissions at the facility include releases of thiobendazole (TBZ), monochloroacetone benzene, and hydrochloric acid vapors.

01 ☒ D. FIRE EXPLOSIVE CONDITIONS 02 ☐ OBSERVED (DATE: _____) ☒ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION
Potential exists through routine operation of the facility; flammable solvents are handled at the plant.

01 ☒ E. DIRECT CONTACT 02 ☐ OBSERVED (DATE: _____) ☒ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION
Potential is low since this is an active facility which maintains adequate security.

01 ☒ F. CONTAMINATION OF SOIL 02 ☒ OBSERVED (DATE: 1984) ☐ POTENTIAL ☐ ALLEGED
03 AREA POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION
Soil contamination has been documented in the vicinity of past underground tank areas and the wastewater pretreatment unit. Contaminants include various organic solvents and phenols.

01 ☒ G. DRINKING WATER CONTAMINATION 02 ☐ OBSERVED (DATE: _____) ☒ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION
Potential is low since residents of Rahway and Linden receive drinking water from the Rahway Water Dept. and Elizabethtown Water Company, respectively. The Rahway Water Dept. obtains a small portion of its water from several wells located approx. 1 mile west of the Merck facility.

01 ☒ H. WORKER EXPOSURE/INJURY 02 ☐ OBSERVED (DATE: _____) ☒ POTENTIAL ☐ ALLEGED
03 WORKERS POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION
Potential exists through accidents and equipment malfunctions, and areas of contamination which have been identified onsite.

01 ☒ I. POPULATION EXPOSURE/INJURY 02 ☐ OBSERVED (DATE: _____) ☒ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION
Potential exists since facility is located in a densely populated urban area. The most likely route of exposure would be through air releases.



POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE 02 SITE NUMBER

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 ☒ J. DAMAGE TO FLORA
04 NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE: _____) ☒ POTENTIAL ☐ ALLEGED

Potential exists due to documented surface water contamination.

01 ☒ K. DAMAGE TO FAUNA
04 NARRATIVE DESCRIPTION (include name(s) of species)

02 ☐ OBSERVED (DATE: _____) ☒ POTENTIAL ☐ ALLEGED

Potential exists due to documented surface water contamination.

01 ☒ L. CONTAMINATION OF FOOD CHAIN
04 NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE: _____) ☒ POTENTIAL ☐ ALLEGED

Potential exists due to documented surface water contamination and possible adverse impact on Rahway River.

01 ☒ M. UNSTABLE CONTAINMENT OF WASTES
(Spills, Runoff, Standing liquids, Leaking drums)

02 ☒ OBSERVED (DATE: 1984-1986) ☐ POTENTIAL ☐ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

Past releases include a leak from a wastewater storage tank in 1984 and a leaking underground pipe containing industrial wastewater in 1986.

01 ☒ N. DAMAGE TO OFFSITE PROPERTY
04 NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE: _____) ☒ POTENTIAL ☐ ALLEGED

Potential exists through migration of contaminants via ground water and surface water (Kings Creek).

01 ☒ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs
04 NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE: _____) ☒ POTENTIAL ☐ ALLEGED

Process wastewater is discharged to Linden - Roselle Sewage Authority and Rahway Valley Sewage Authority under NJPDES permit NJ0002348

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING
04 NARRATIVE DESCRIPTION

02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED

No evidence of any illegal dumping was identified during the file review.

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

III. TOTAL POPULATION POTENTIALLY AFFECTED: _____

IV. COMMENTS

Areas of environmental concern include past landfills, underground tank farm areas, and leak areas.

V. SOURCES OF INFORMATION (Cite specific references, e.g., state law, sample analysis, reports)

Merck Information on Solid Waste Management Units (Ref. B)
NJDEP Administrative Consent Order Draft - Underground Sewer Pipe Leak (Ref. F)
NJDEP Administrative Orders for Air Releases (Ref. K,L)
EPA Administrative Order for contaminated Discharges to Kings Creek (Ref. M)



POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION
PART 4 - PERMIT AND DESCRIPTIVE INFORMATION

I. IDENTIFICATION
01 STATE 02 SITE NUMBER

II. PERMIT INFORMATION

01 TYPE OF PERMIT ISSUED (Check all that apply)	02 PERMIT NUMBER	03 DATE ISSUED	04 EXPIRATION DATE	05 COMMENTS
<input checked="" type="checkbox"/> A. NPDES	NJ0002348	11/2/84 5/14/86	12/31/89 12/31/87	SIU permit DSW permit
<input type="checkbox"/> B. UIC				
<input checked="" type="checkbox"/> C. AIR	Plant ID 40009	numerous	numerous	893 air permits
<input checked="" type="checkbox"/> D. RCRA	2013C	2/20/87	2/20/92	
<input type="checkbox"/> E. RCRA INTERIM STATUS				
<input type="checkbox"/> F. SPCC PLAN				
<input type="checkbox"/> G. STATE (Specify)				
<input type="checkbox"/> H. LOCAL (Specify)				
<input type="checkbox"/> I. OTHER (Specify)				
<input type="checkbox"/> J. NONE				

III. SITE DESCRIPTION

01 STORAGE DISPOSAL (Check all that apply)	02 AMOUNT	03 UNIT OF MEASURE	04 TREATMENT (Check all that apply)	05 OTHER
<input type="checkbox"/> A. SURFACE IMPOUNDMENT			<input checked="" type="checkbox"/> A. INCINERATION	<input checked="" type="checkbox"/> A. BUILDINGS ON SITE
<input type="checkbox"/> B. PILES			<input type="checkbox"/> B. UNDERGROUND INJECTION	
<input checked="" type="checkbox"/> C. DRUMS, ABOVE GROUND	206,000	gallons	<input checked="" type="checkbox"/> C. CHEMICAL/PHYSICAL	
<input checked="" type="checkbox"/> D. TANK, ABOVE GROUND	215,000	gallons	<input type="checkbox"/> D. BIOLOGICAL	
<input checked="" type="checkbox"/> E. TANK, BELOW GROUND	475,000	gallons	<input type="checkbox"/> E. WASTE OIL PROCESSING	
<input checked="" type="checkbox"/> F. LANDFILL	unknown		<input type="checkbox"/> F. SOLVENT RECOVERY	06 AREA OF SITE
<input type="checkbox"/> G. LANDFARM			<input type="checkbox"/> G. OTHER RECYCLING/RECOVERY	210 (Acres)
<input type="checkbox"/> H. OPEN DUMP			<input type="checkbox"/> H. OTHER (Specify)	
<input type="checkbox"/> I. OTHER (Specify)				

07 COMMENTS

01C and D. Storage capacity in RCRA Part B application
01E. Prior underground tank storage capacity; tanks have been removed from the ground
01F. Two onsite landfills (200' diameter) are no longer active.
04A. Facility has one trash incinerator and two pathological incinerators
04C. Wastewater is neutralized prior to discharge to POTW.

IV. CONTAINMENT

01 CONTAINMENT OF WASTES (Check one)
☐ A. ADEQUATE, SECURE ☒ B. MODERATE ☐ C. INADEQUATE, POOR ☐ D. INSECURE, UNSOUND, DANGEROUS

02 DESCRIPTION OF DRUMS, DIKING, LINERS, BARRIERS, ETC.

Active waste management units at facility have adequate containment. Containment in former landfills and underground tank areas is suspect.

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE: ☐ YES ☒ NO
02 COMMENTS

Facility maintains adequate security.

VI. SOURCES OF INFORMATION (Cite specific references, e.g. state files, sample analysis, reports)

RCRA Part B Permit Application (Ref. A)
Merck Information on Solid Waste Management Units (Ref. B)



POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE 02 SITE NUMBER

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY
(Check as applicable)

SURFACE WELL
COMMUNITY A. ☒ B. ☒
NON-COMMUNITY C. ☐ D. ☐

02 STATUS

ENDANGERED AFFECTED MONITORED
A. ☐ B. ☐ C. ☒
D. ☐ E. ☐ F. ☐

03 DISTANCE TO SITE

A. 1.0 (mi)
B. _____ (mi)

III. GROUNDWATER

01 GROUNDWATER USE IN VICINITY (Check one)

☐ A. ONLY SOURCE FOR DRINKING ☒ B. DRINKING
(Other sources available)
COMMERCIAL, INDUSTRIAL, IRRIGATION
(No other water sources available)
☐ C. COMMERCIAL, INDUSTRIAL, IRRIGATION
(Limited other sources available)
☐ D. NOT USED, UNUSEABLE

02 POPULATION SERVED BY GROUND WATER 30,000

03 DISTANCE TO NEAREST DRINKING WATER WELL 1.0 (mi)

04 DEPTH TO GROUNDWATER

10-25 (ft)

05 DIRECTION OF GROUNDWATER FLOW

unknown

06 DEPTH TO AQUIFER
OF CONCERN

100 (ft)

07 POTENTIAL YIELD
OF AQUIFER

370 gpm
(gpd)

08 SOLE SOURCE AQUIFER

☐ YES ☒ NO

09 DESCRIPTION OF WELLS (including usage, depth, and location relative to population and buildings)

Rahway Water Dept. obtains a portion of its water from one well (250' deep) located about 1 mile west of facility which taps the Brunswick formation. Four remaining wells (40-120' deep) have been taken out of service due to contamination.

10 RECHARGE AREA

☒ YES COMMENTS
☐ NO

11 DISCHARGE AREA

☐ YES COMMENTS
☐ NO

IV. SURFACE WATER

01 SURFACE WATER USE (Check one)

☒ A. RESERVOIR, RECREATION, DRINKING WATER SOURCE
☐ B. IRRIGATION, ECONOMICALLY IMPORTANT RESOURCES
☐ C. COMMERCIAL, INDUSTRIAL
☐ D. NOT CURRENTLY USED

02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER

NAME:

Kings Creek

Rahway River

AFFECTED

☒

☐

☐

DISTANCE TO SITE

0

0.75

(mi)

(mi)

(mi)

V. DEMOGRAPHIC AND PROPERTY INFORMATION

01 TOTAL POPULATION WITHIN

ONE (1) MILE OF SITE

A. 23,000
NO. OF PERSONS

TWO (2) MILES OF SITE

B. 45,650
NO. OF PERSONS

THREE (3) MILES OF SITE

C. 88,000
NO. OF PERSONS

02 DISTANCE TO NEAREST POPULATION

0.10 (mi)

03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE

numerous

04 DISTANCE TO NEAREST OFF-SITE BUILDING

0.10 (mi)

05 POPULATION WITHIN VICINITY OF SITE (Provide narrative description of nature of population within vicinity of site, e.g., rural, village, densely populated urban area)

Facility is located in a densely populated urban area. Population within 3 miles of site includes Rahway, Linden, and part of Clark and Roselle.



POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE 02 SITE NUMBER

VI. ENVIRONMENTAL INFORMATION

01 PERMEABILITY OF UNSATURATED ZONE (Check one)

Stratified drift deposits

☐ A. $10^{-6} - 10^{-8}$ cm/sec ☐ B. $10^{-4} - 10^{-6}$ cm/sec ☒ C. $10^{-4} - 10^{-3}$ cm/sec ☐ D. GREATER THAN 10^{-3} cm/sec

02 PERMEABILITY OF BEDROCK (Check one)

Brunswick Formation (fractured)

☐ A. IMPERMEABLE (Less than 10^{-8} cm/sec) ☐ B. RELATIVELY IMPERMEABLE ($10^{-4} - 10^{-6}$ cm/sec) ☒ C. RELATIVELY PERMEABLE ($10^{-2} - 10^{-4}$ cm/sec) ☐ D. VERY PERMEABLE (Greater than 10^{-2} cm/sec)

03 DEPTH TO BEDROCK

50-100 (ft)

04 DEPTH OF CONTAMINATED SOIL ZONE

unknown (ft)

05 SOIL pH

unknown

06 NET PRECIPITATION

12 (in)

07 ONE YEAR 24 HOUR RAINFALL

2.5 (in)

08 SLOPE

SITE SLOPE
≤ 1 %

DIRECTION OF SITE SLOPE
southeast

TERRAIN AVERAGE SLOPE
≤ 1 %

09 FLOOD POTENTIAL

N/A

SITE IS IN YEAR FLOODPLAIN

10

☐ SITE IS ON BARRIER ISLAND, COASTAL HIGH HAZARD AREA, RIVERINE FLOODWAY

11 DISTANCE TO WETLANDS (5 acre minimum)

ESTUARINE

OTHER

A. (mi)

B. 0.50 (mi)

12 DISTANCE TO CRITICAL HABITAT (of endangered species)

(mi)

ENDANGERED SPECIES:

13 LAND USE ADJACENCY

DISTANCE TO:

COMMERCIAL INDUSTRIAL

RESIDENTIAL AREAS; NATIONAL STATE PARKS,
FORESTS, OR WILDLIFE RESERVES

AGRICULTURAL LANDS
PRIME AG LAND AG LAND

A. 0.10 (mi)

B. 0.10 (mi)

C. (mi) D. (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

Topography of the site is relatively flat. Drainage from site would follow Kings Creek, which empties into the Rahway River about 1 mile southeast of the facility.

No specific information regarding hydrogeology beneath the site could be identified during the file review. There are no monitoring wells or production wells at the facility. In general, the Rahway area is underlain by approximately 30 feet of stratified drift deposits and fractured bedrock of the Brunswick formation. Ground water movement in the Rahway area is toward the Rahway River and its branches, and through the valley extending from Rahway to the Arthur Kill. In relation to Merck, this would be in a south to southeast direction from the facility.

VII. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

USGS Report in Geology and Ground Water Resources of the Rahway Area (Ref. C)
Water Withdrawal Map
USGS Quad Map



POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 6 - SAMPLE AND FIELD INFORMATION

I. IDENTIFICATION

01 STATE 02 SITE NUMBER

II. SAMPLES TAKEN

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
GROUNDWATER			
SURFACE WATER	3	NJDOH Laboratory ¹	available
WASTE			
AIR			
RUNOFF			
SPILL			
SOIL	10	Atlantic Ecology Labs ² , Lakewood, NJ	available
VEGETATION			
OTHER			

III. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS

IV. PHOTOGRAPHS AND MAPS

01 TYPE <input type="checkbox"/> GROUND <input type="checkbox"/> AERIAL	02 IN CUSTODY OF _____ <small>(Name of organization or individual)</small>
03 MAPS <input type="checkbox"/> YES <input type="checkbox"/> NO	04 LOCATION OF MAPS NJDEP/DHWM/BHWE Central File

V. OTHER FIELD DATA COLLECTED (Provide narrative description)

VI. SOURCES OF INFORMATION (Cite specific references e.g., state files, sample analysis reports)

Merck Information on Solid Waste Management Units (Ref. B)
NJDEP Administrative Order For Draft - Underground Sewer Pipe Leak (Ref. F)

- 1 - Samples collected by NJDEP following underground sewer pipe leak into Kings Creek on 3/25/86
- 2 - Samples collected by facility following leak from wastewater storage tank 7/1/84



POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 8 - OPERATOR INFORMATION

I. IDENTIFICATION

01 STATE 02 SITE NUMBER

II. CURRENT OPERATOR (Provide if different from owner)

OPERATOR'S PARENT COMPANY (If applicable)

01 NAME Merck & Co., Inc.		02 D+B NUMBER 00-131-7064		10 NAME N/A		11 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.) 126 East Lincoln Ave.		04 SIC CODE 2833, 2834, 2899, 2819, 2867		12 STREET ADDRESS (P.O. Box, RFD #, etc.)		13 SIC CODE	
05 CITY Rahway		06 STATE NJ	07 ZIP CODE 07065	14 CITY		15 STATE	16 ZIP CODE
08 YEARS OF OPERATION 1903-present		09 NAME OF OWNER same as above					

III. PREVIOUS OPERATOR(S) (List most recent first; provide only if different from owner)

PREVIOUS OPERATORS' PARENT COMPANIES (If applicable)

01 NAME None identified		02 D+B NUMBER		10 NAME		11 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE		12 STREET ADDRESS (P.O. Box, RFD #, etc.)		13 SIC CODE	
05 CITY		06 STATE	07 ZIP CODE	14 CITY		15 STATE	16 ZIP CODE
08 YEARS OF OPERATION		09 NAME OF OWNER DURING THIS PERIOD					
01 NAME		02 D+B NUMBER		10 NAME		11 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE		12 STREET ADDRESS (P.O. Box, RFD #, etc.)		13 SIC CODE	
05 CITY		06 STATE	07 ZIP CODE	14 CITY		15 STATE	16 ZIP CODE
08 YEARS OF OPERATION		09 NAME OF OWNER DURING THIS PERIOD					
01 NAME		02 D+B NUMBER		10 NAME		11 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE		12 STREET ADDRESS (P.O. Box, RFD #, etc.)		13 SIC CODE	
05 CITY		06 STATE	07 ZIP CODE	14 CITY		15 STATE	16 ZIP CODE
08 YEARS OF OPERATION		09 NAME OF OWNER DURING THIS PERIOD					

IV. SOURCES OF INFORMATION (See specific references, e.g., state files, sample analysis, reports)

RCRA Part B Permit Application (Ref. A)



POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 9 - GENERATOR/TRANSPORTER INFORMATION

I. IDENTIFICATION

01 STATE 02 SITE NUMBER

II. ON-SITE GENERATOR

01 NAME Merck & Co., Inc.		02 D+B NUMBER 00-131-7064	
03 STREET ADDRESS (P.O. Box, RFD #, etc.) 126 East Lincoln Ave.		04 SIC CODE 2833, 2834, 2899, 2819, 2867	
05 CITY Rahway	06 STATE NJ	07 ZIP CODE 07065	

III. OFF-SITE GENERATOR(S)

01 NAME N/A		02 D+B NUMBER		01 NAME		02 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE		03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE	
05 CITY		06 STATE 07 ZIP CODE		05 CITY		06 STATE 07 ZIP CODE	
01 NAME		02 D+B NUMBER		01 NAME		02 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE		03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE	
05 CITY		06 STATE 07 ZIP CODE		05 CITY		06 STATE 07 ZIP CODE	

IV. TRANSPORTER(S)

01 NAME		02 D+B NUMBER		01 NAME		02 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE		03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE	
05 CITY		06 STATE 07 ZIP CODE		05 CITY		06 STATE 07 ZIP CODE	
01 NAME		02 D+B NUMBER		01 NAME		02 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE		03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE	
05 CITY		06 STATE 07 ZIP CODE		05 CITY		06 STATE 07 ZIP CODE	

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

RCRA Part B Permit Application (Ref. A)



POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION

01 STATE 02 SITE NUMBER

II. PAST RESPONSE ACTIVITIES

01 ☐ A. WATER SUPPLY CLOSED
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

01 ☐ B. TEMPORARY WATER SUPPLY PROVIDED
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

01 ☐ C. PERMANENT WATER SUPPLY PROVIDED
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

01 ☐ D. SPILLED MATERIAL REMOVED
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

01 ☒ E. CONTAMINATED SOIL REMOVED
04 DESCRIPTION

02 DATE 1977

03 AGENCY _____

Contaminated soil removed during excavation of former underground tanks (Building 69 tank farm)

01 ☐ F. WASTE REPACKAGED
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

01 ☐ G. WASTE DISPOSED ELSEWHERE
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

01 ☐ H. ON SITE BURIAL
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

01 ☐ I. IN SITU CHEMICAL TREATMENT
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

01 ☐ J. IN SITU BIOLOGICAL TREATMENT
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

01 ☐ K. IN SITU PHYSICAL TREATMENT
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

01 ☐ L. ENCAPSULATION
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

01 ☐ M. EMERGENCY WASTE TREATMENT
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

01 ☐ N. CUTOFF WALLS
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

01 ☐ O. EMERGENCY DIKING/SURFACE WATER DIVERSION
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

01 ☐ P. CUTOFF TRENCHES/SUMP
04 DESCRIPTION

02 DATE _____

03 AGENCY _____

01 ☐ Q. SUBSURFACE CUTOFF WALL
04 DESCRIPTION

02 DATE _____

03 AGENCY _____



POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION
01 STATE 02 SITE NUMBER

II. PAST RESPONSE ACTIVITIES (Continued)

01 ☐ R. BARRIER WALLS CONSTRUCTED
04 DESCRIPTION

02 DATE

03 AGENCY

01 ☐ S. CAPPING/COVERING
04 DESCRIPTION

02 DATE

03 AGENCY

01 ☐ T. BULK TANKAGE REPAIRED
04 DESCRIPTION

02 DATE

03 AGENCY

01 ☐ U. GROUT CURTAIN CONSTRUCTED
04 DESCRIPTION

02 DATE

03 AGENCY

01 ☐ V. BOTTOM SEALED
04 DESCRIPTION

02 DATE

03 AGENCY

01 ☐ W. GAS CONTROL
04 DESCRIPTION

02 DATE

03 AGENCY

01 ☐ X. FIRE CONTROL
04 DESCRIPTION

02 DATE

03 AGENCY

01 ☐ Y. LEACHATE TREATMENT
04 DESCRIPTION

02 DATE

03 AGENCY

01 ☐ Z. AREA EVACUATED
04 DESCRIPTION

02 DATE

03 AGENCY

01 ☐ 1. ACCESS TO SITE RESTRICTED
04 DESCRIPTION

02 DATE

03 AGENCY

01 ☐ 2. POPULATION RELOCATED
04 DESCRIPTION

02 DATE

03 AGENCY

01 ☐ 3. OTHER REMEDIAL ACTIVITIES
04 DESCRIPTION

02 DATE

03 AGENCY

Merck Information on Solid Waste Management Units (Ref. B)
Memo: Merck Information on Underground Tanks (Ref. P)

III. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)



POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 11 - ENFORCEMENT INFORMATION

I. IDENTIFICATION

01 STATE 02 SITE NUMBER

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY/ENFORCEMENT ACTION ☒ YES ☐ NO

02 DESCRIPTION OF FEDERAL, STATE, LOCAL REGULATORY/ENFORCEMENT ACTION

Regulatory/Enforcement actions against Merck relate to air releases and past discharges to Kings Creek, as follows:

- 10/25/77 - EPA Administrative Order for contaminated discharges to Kings Creek and numerous spill events involving ortho-dichlorobenzene, hydraulic fluid, cobalt catalyst, ammonia, thiobendazole, and sodium thiocyanate.
- 1980-1986 - Middlesex County Health Dept. Notices of Violation for TBZ/low boiler emissions, hydrochloric acid vapors, monochloroacetone releases, and black smoke from the trash incinerator.
- 8/25/86 - NJDEP Administrative Consent Order for releases of air contaminants from the TBZ process.
- 9/86 - NJDEP Administrative Order for underground sewer pipe leak incident and discharge to Kings Creek.

The Merck Facility is a RCRA TSD and therefore subject to the RCRA Corrective Action program. A RCRA Facility Assessment was completed by NJDEP in 1986 and submitted to EPA. A remedial investigation was recommended due to documented soil and surface water contamination and the potential for ground water contamination due to spill and leak events and past waste management units. It is anticipated that areas of contamination identified onsite will be addressed under RCRA regulations.

III. SOURCES OF INFORMATION (Cite specific references e.g., state files, sample analysis, reports)

NJDEP/DWR Draft Administrative Order - Underground Sewer Pipe Leak (Ref. F)
NJDEP/DEQ Administrative Consent Order - Release of Air Contaminants from TBZ Process (Ref. K)
EPA Administrative Order for Contaminated Discharges to Kings Creek (Ref. M)
RCRA Facility Assessment Narrative (Ref. R)

REFERENCES

MAPS

1. USGS QUAD MAP - PERTH AMBOY AND ARTHUR KILL QUADS
2. SITE MAP
3. TAX MAPS: RAHWAY AND LINDEN
4. NJ BASE ATLAS MAP SHEET #26
5. NJDEP WATER SUPPLY OVERLAY SHEET #26
6. NJDEP GEOLOGIC OVERLAY SHEET #26
7. WATER WITHDRAWAL MAP

ATTACHMENTS

- A. RCRA PART A AND B PERMIT APPLICATION - 6/8/84
- B. MERCK & CO. INFORMATION ON SOLID WASTE MANAGEMENT UNITS
5/24/85
- C. USGS REPORT ON GEOLOGY AND GROUND WATER RESOURCES OF RAHWAY AREA
(1968)
- D. NJPDES DSW/SIU PERMIT AND RENEWAL APPLICATION - 5/14/86
- E. NJPDES COMPLIANCE EVALUATION INSPECTION - 3/10/88
- F. NJDEP/DWR DRAFT ADMINISTRATIVE CONSENT ORDER - UNDERGROUND SEWER
PIPE LEAK INCIDENT - 9/86
- G. MERCK INFORMATION ON SEWER LINE LEAK - 4/14/86
- H. NJDEP/DHWM/BHWE SITE INSPECTION MEMOS - 3/21/85, 2/28/86
- I. LETTERS: PARTIAL CLOSURE OF HAZARDOUS WASTE ACTIVITIES - 10/84,
4/86
- J. INFORMATION ON TBZ PROCESS ODOR PROBLEM - 1983-1986
- K. NJDEP/DEQ ADMINISTRATIVE CONSENT ORDER - RELEASE OF AIR
CONTAMINANTS FROM TBZ PROCESS - 8/25/86
- L. NJDEP/DEQ ADMINISTRATIVE ORDERS AND NOTICES OF PROSECUTION FOR
AIR RELEASES - 1983-1986
- M. EPA ADMINISTRATIVE ORDER FOR CONTAMINATED DISCHARGES TO KINGS
CREEK - 10/25/77
- N. LETTER: MERCK TANK CAR LEAK INCIDENT - 6/13/86
- O. EPA INFORMATION ON UNDERGROUND TANK LEAK - 8/12/85
- P. MEMO: INFORMATION ON FORMER UNDERGROUND TANKS - 11/7/86
- Q. RAHWAY WATER DEPT. INFORMATION ON PRIVATE WELLS IN RAHWAY
11/19/86
- R. RCRA FACILITY ASSESSMENT NARRATIVE - 11/86
- S. NJDEP RCRA FACILITY ASSESSMENT SITE INSPECTION - 10/30/86

Merck & Co., Inc.

Rahway, Union County

PERTH AMBOY QUADRANGLE

NEW JERSEY-NEW YORK

7.5 MINUTE SERIES (TOPOGRAPHIC)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

1" = 2,000 feet

83° 74' 15"

12110000 FEET (N. J.)

12120000 FEET (N. J.)

5650000 E.

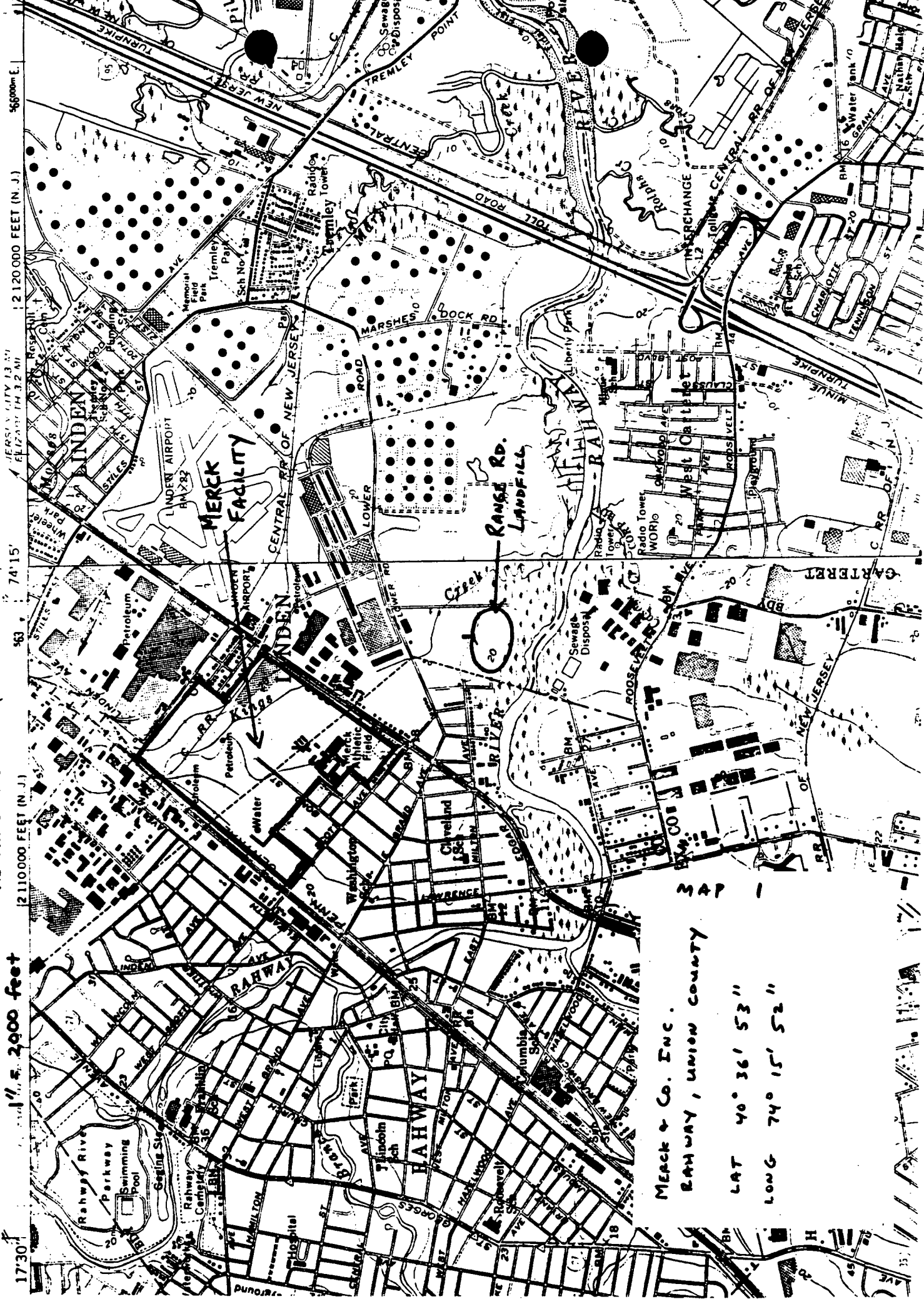
Merck & Co. Inc.

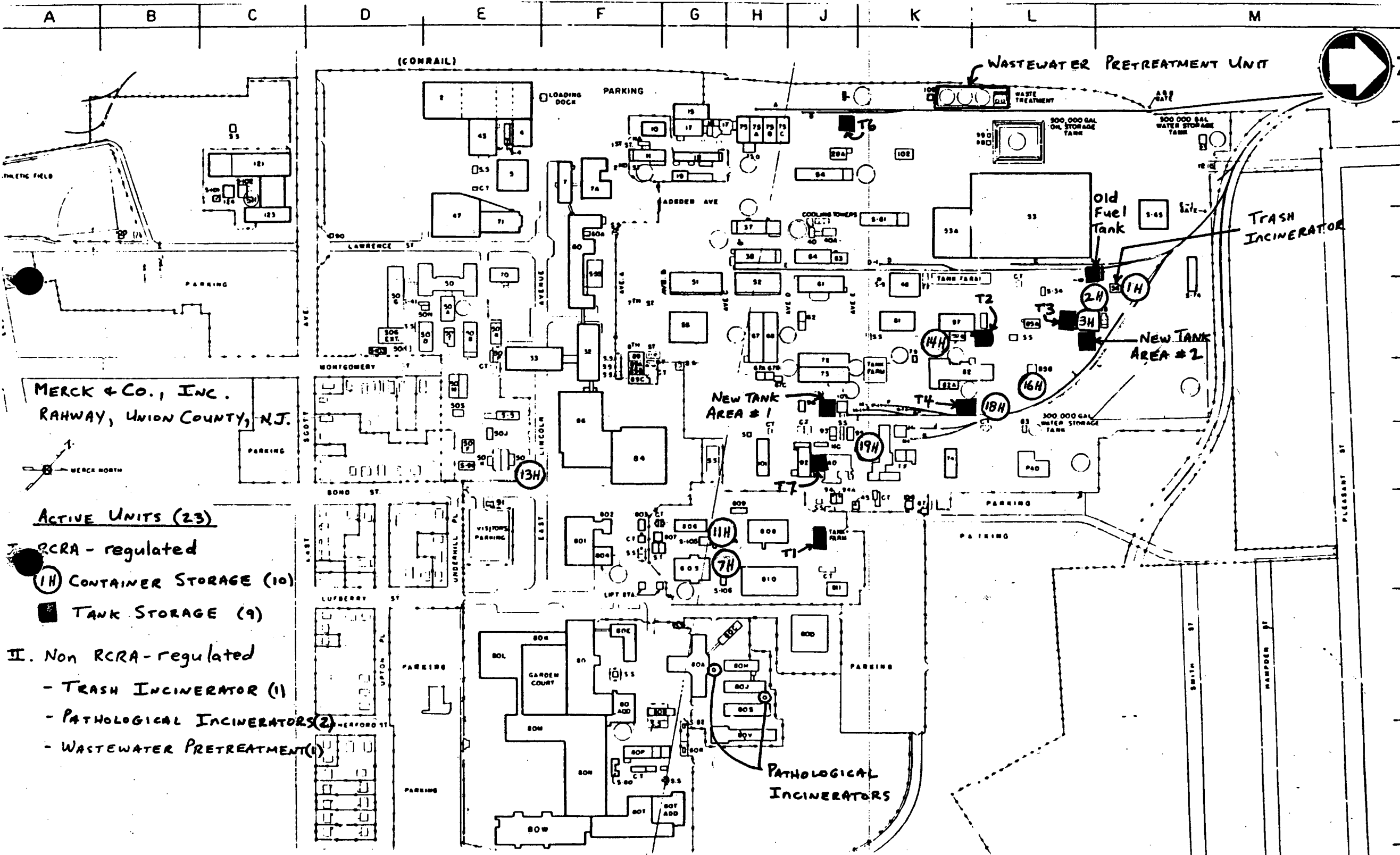
RAHWAY, UNION COUNTY

LAT 40° 36' 53"

LONG 74° 15' 52"

MAP 1



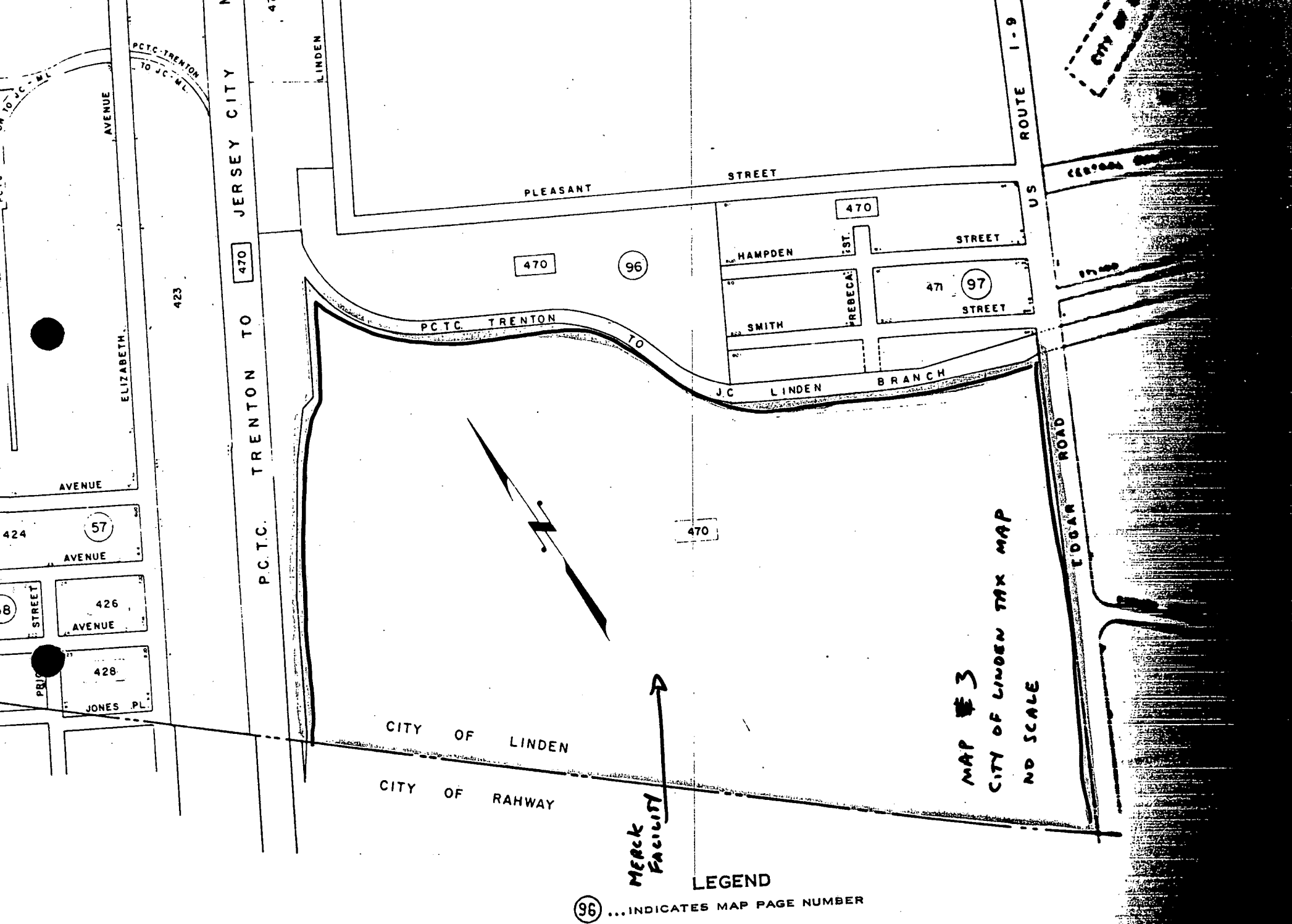


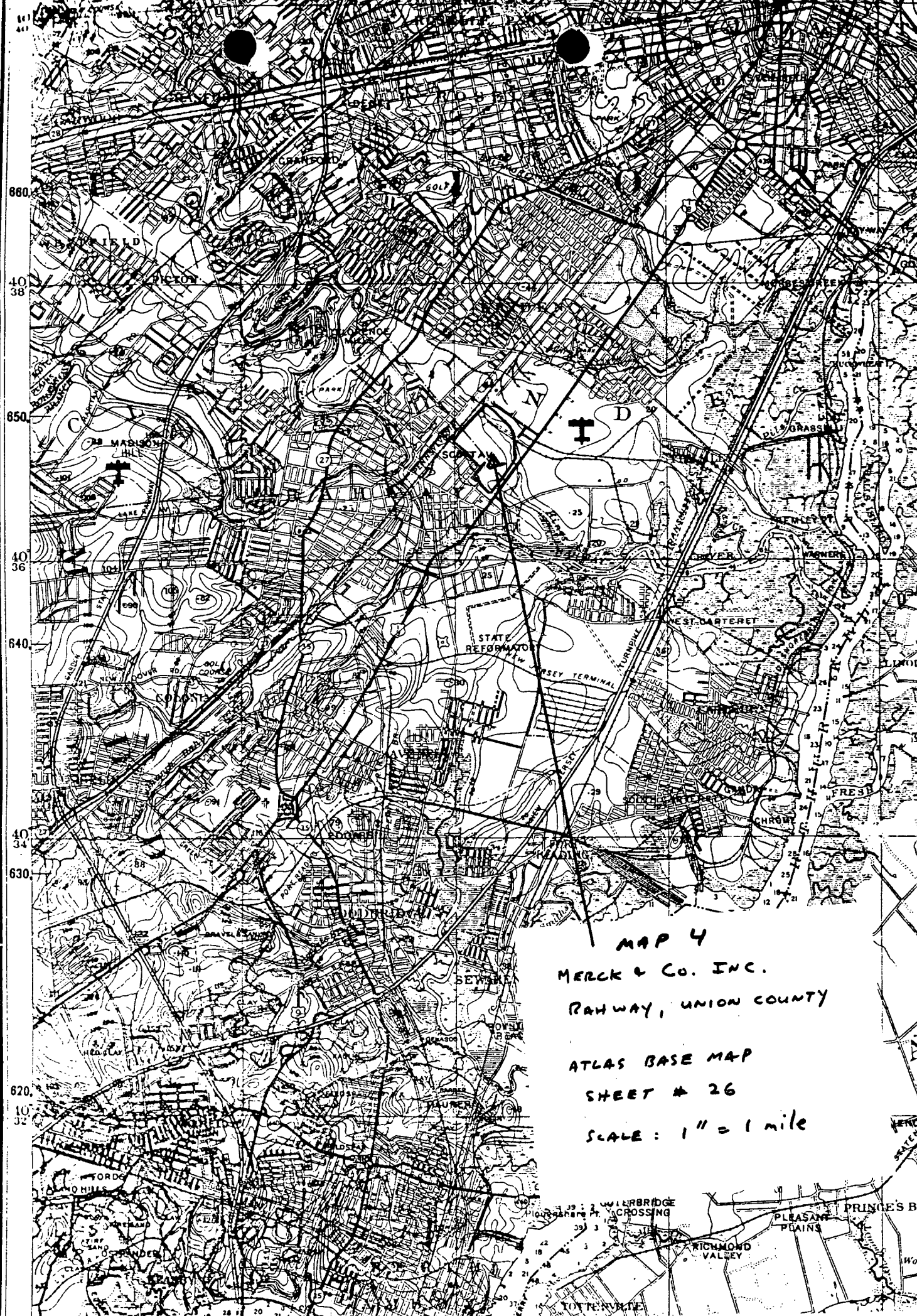
MERCK & CO., INC.
RAHWAY, UNION COUNTY, N.J.

ACTIVE UNITS (23)

- RCRA - regulated
- (1H) CONTAINER STORAGE (10)
- (S) TANK STORAGE (9)

- II. Non RCRA-regulated
- TRASH INCINERATOR (1)
- PATHOLOGICAL INCINERATORS (2)
- WASTEWATER PRETREATMENT (1)

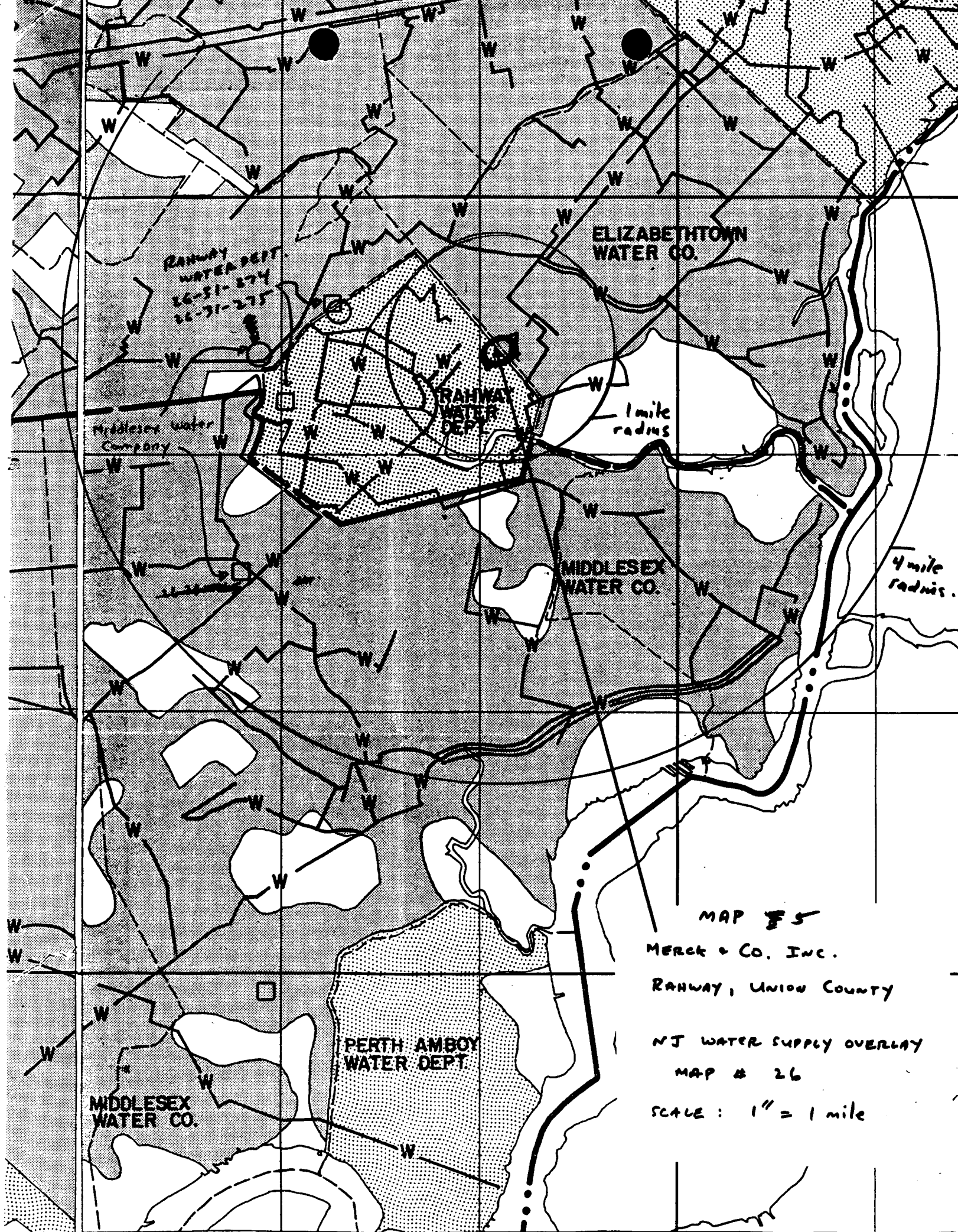




MAP 4
MERCK & CO. INC.
RAHWAY, UNION COUNTY
ATLAS BASE MAP
SHEET # 26
SCALE: 1" = 1 mile

860
40
38
850
40
36
640
40
34
630
620
10
32

WILBRIDGE
CROSSING
PLEASANT PLAINS
PRINCE'S B
RICHMOND VALLEY
TOTTENHAM



LEGEND



AREA SERVED BY PRIVATE WATER SERVICE COMPANIES



AREA SERVED BY REGIONALLY OWNED WATER SERVICE COMPANIES



AREA SERVED BY MUNICIPALLY OWNED WATER SERVICE COMPANIES



AREA NOT PRESENTLY SERVED BY WATER SERVICE



PUBLIC SUPPLY WELLS



SURFACE WATER INTAKE



MAJOR WATER MAINS



TOWNSHIP BOUNDARIES



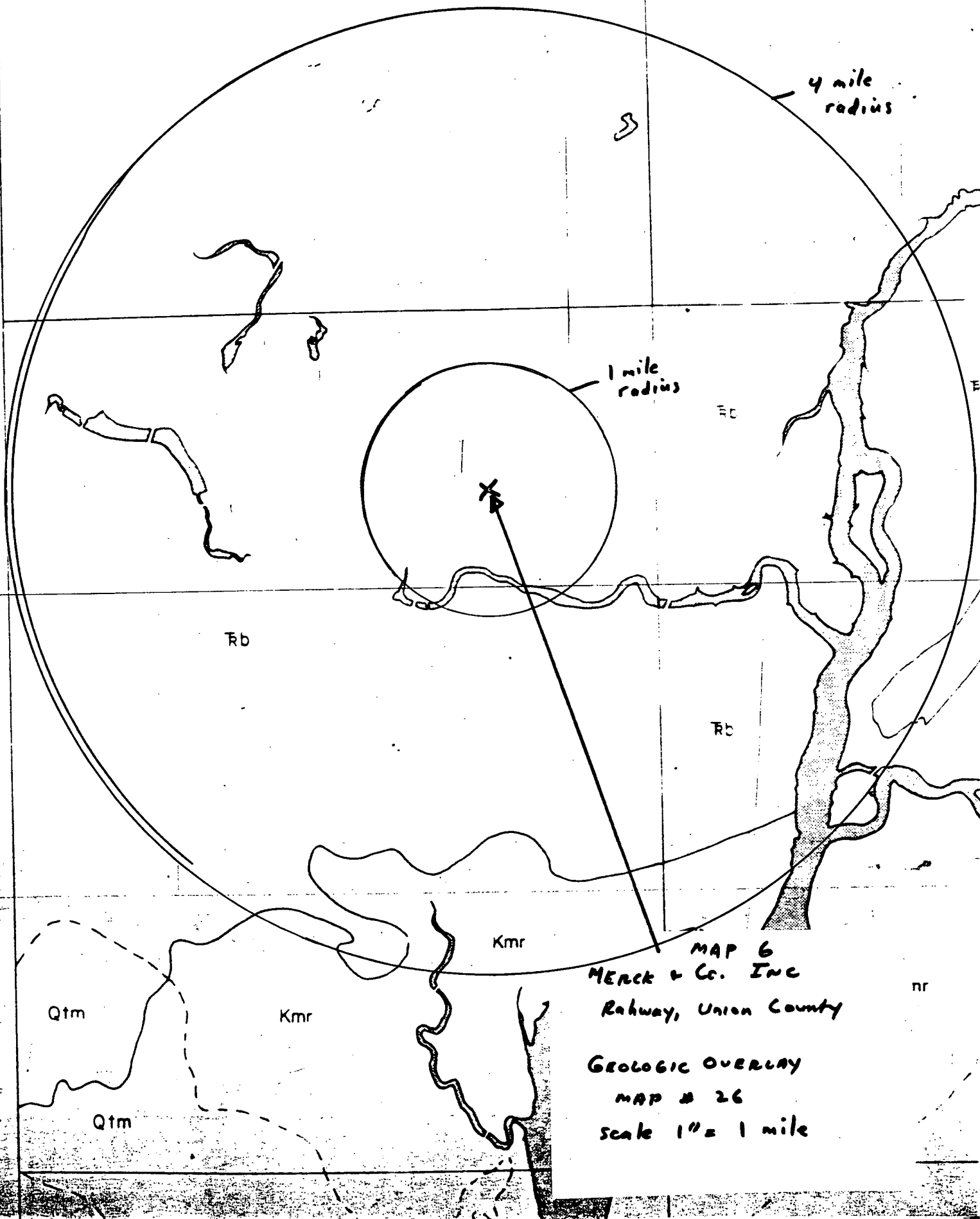
COUNTY BOUNDARIES



STATE BOUNDARIES

WATER SUPPLY OVERLAY MAP LEGEND

Trb = Brunswick formation



11. 5. 62

LATITUDE 403653
LONGITUDE 741552

DRAFT

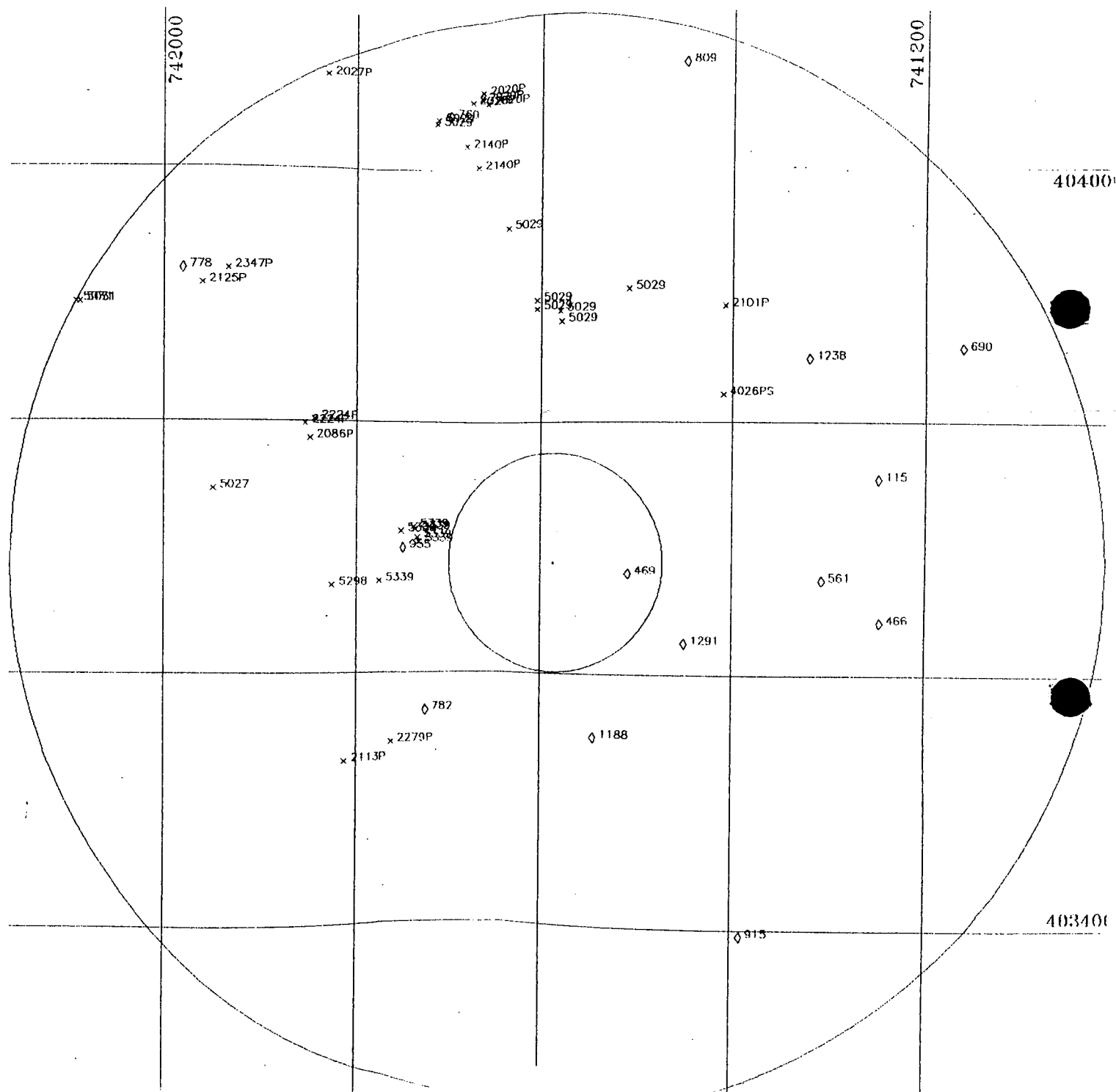
MAP 7

SCALE: 1:63,360
(1 Inch = 1 Mile)

NJGS CASE INDEX DATA RETRIEVED FROM:
NEW JERSEY GEOLOGICAL SURVEY
ON 12/22/87

PLOT PRODUCED BY:
NJDEP
DIVISION OF WATER RESOURCES
BUREAU OF WATER ALLOCATION
CN-029
TRENTON, NJ 08625

DATE: 06/24/88



NUMBER	NAME	SOURCEID	LOCID	LAT	LON	LLACC	DISTANCE	COUNTY	MUN	DEPTH	GEO1	GEO2	CAPACITY
10548W	AMERICAN CYANAMID COMPANY	2601889	2	403237	741615	U	4.9	23	25	62	GKM		120
2020P	SCHERING CORPORATION	4600076	1	404035	741640	U	4.3	39	08	467	GTRB		460
	SCHERING CORPORATION	2600073	2	404038	741639		4.4	39	08	398	GTRB		400
	SCHERING CORPORATION	2600438	3	404035	741640	U	4.3	39	08	405	GTRB		400
	SCHERING CORPORATION	2605532	4A	404033	741636		4.3	39	08	550	GTRB		450
	SCHERING CORPORATION	2605849	5	404033	741646		4.3	39	08	500	GTRB		450
2027P	MONSANTO PLASTICS & RESINS CO.	4600112	2—PRODUCTN	404045	741818	F	4.9	39	08	577	GTRB		250
	MONSANTO PLASTICS & RESINS CO.	4600214	1—STANDBY	404045	741818	F	4.9	39	08	396	GTRB		200
2086P	UNITED STATES GYPSUM COMPANY	2600204	2	403752	741829	U	2.6	39	02	303	GTRB		250
2101P	DECORATOR PLASTICS, INC.	2604727		403855	741405		2.8	39	04	570	GTRB		200
✓ 2113P	COLONIA COUNTRY CLUB	2601806	1	403518	741807		2.7	23	25	314	GTRB		400
2125P	LERMER PACKAGING CORPORATION	2602649	WELL #1	403905	741936		4.1	39	26	300	GTRB		200
2140P	ROTARY PEN CORPORATION	2602601	1	404012	741650		3.9	39	08	405	GTRB		60
	ROTARY PEN CORPORATION	2602831	2	404002	741642		3.7	39	08	402	GTRB		105
2224P	HYATT CLARK INDUSTRIES INC.	4600107	1	403759	741832		2.7	39	02	501	GTRB		500
	HYATT CLARK INDUSTRIES INC.	4600108	2	403759	741832		2.7	39	02	505	GTRB		500
	HYATT CLARK INDUSTRIES INC.	2600580	3	403801	741826		2.6	39	02	504	GTRB		500
2279P	VOLCO BRASS - WELL SEALED 2/88	2600049	1	403527	741737		2.2	39	08	435	GTRB		350
2347P	GARWOOD PAPERBOARD MILL	4600192	1	403912	741920		4.0	39	06	136	GTRB		150
	GARWOOD PAPERBOARD MILL	4600193	2	403912	741920		4.0	39	06	194	GTRB		
	GARWOOD PAPERBOARD MILL	4600194	3	403912	741920		4.0	39	06	235	GTRB		300
	GARWOOD PAPERBOARD MILL	4600195	4	403912	741920		4.0	39	06	235	GTRB		300
4026PS	EXXON COMPANY USA	MORSES	CREEK	403813	741406	T	2.2	39	09		SY		
5027	ELIZABETHTOWN WATER COMPANY	2604751	ELKS CLUB	403728	741929	F	3.2	39	02	59	GQSD		288
5029	ELIZABETHTOWN WATER COMPANY	2602393	CHANDLER	403903	741505	F	2.6	39	14	350	GTRB		300
	ELIZABETHTOWN WATER COMPANY	3601696	FIRST AVE	403933	741622	F	3.1	39	14	509	GTRB		450
	ELIZABETHTOWN WATER COMPANY	2602302	WALABURGA1	403854	741603	F	2.3	39	14	350	GTRB		350
	ELIZABETHTOWN WATER COMPANY	2602360	WALABURGA2	403848	741597	F	2.2	39	14	348	GTRB		200
	ELIZABETHTOWN WATER COMPANY	2602412	WALABURGA3	403858	741603	F	2.4	39	14	321	GTRB		360
	ELIZABETHTOWN WATER COMPANY	2602463	WALABURGA4	403853	741548	F	2.3	39	14	325	GTRB		450
	ELIZABETHTOWN WATER COMPANY	4600015	RICHFIELD	404022	741709	F	4.2	39	08	402	GTRB		250
	ELIZABETHTOWN WATER COMPANY	4600014	QUINTON	404024	741708	F	4.2	39	08	502	GTRB		250
5031	ELIZABETHTOWN WATER COMPANY	2500873	WESTFIELD1	403856	742052	F	5.0	39	20	523	GTRB		400
	ELIZABETHTOWN WATER COMPANY	4500005	WESTFIELD2	403856	742054	F	5.0	39	20	502	GTRB		350
✓ 5298	MIDDLESEX WATER COMPANY	MIDDLESEX	RESERVOIR	403642	741815		2.1	39	02		SYRAH		9.0
✓ 5339	RAHWAY, CITY OF	2600381	1	403710	741723		1.4	39	13	50.5	GQSD		300
	RAHWAY, CITY OF	2600380	2	403709	741722		1.3	39	13	51.5	GQSD		300
	RAHWAY, CITY OF	2600724	3	403708	741731		1.5	39	13	76	GTRB		350
	RAHWAY, CITY OF	2601671	4	403705	741721		1.3	39	13	127	GTRB		400
	RAHWAY, CITY OF	2601672	5	403703	741720		1.3	39	13	135	GTRB		400
	RAHWAY, CITY OF	2603795	6	403644	741745		1.7	39	13	269	GTRB		400

Number of Observations: 41

FORM 1 GENERAL		EPA		U.S. ENVIRONMENTAL PROTECTION AGENCY GENERAL INFORMATION <i>Consolidated Permits Program</i> (Read the "General Instructions" before starting.)		I. EPA I.D. NUMBER F N J D 0 0 1 3 1 7 0 6 4	
LABEL ITEMS		PLEASE PLACE LABEL IN THIS SPACE				GENERAL INSTRUCTIONS If a preprinted label has been provided, affix it in the designated space. Review the information carefully; if any of it is incorrect, cross through it and enter the correct data in the appropriate fill-in area below. Also, if any of the preprinted data is absent (the area to the left of the label space lists the information that should appear), please provide it in the proper fill-in area(s) below. If the label is complete and correct, you need not complete items I, III, V, and VI (except VI-B which must be completed regardless). Complete items if no label has been provided. Refer to the instructions for detailed item descriptions and for the legal authorizations under which this data is collected.	
I. EPA I.D. NUMBER							
II. FACILITY NAME							
V. FACILITY MAILING ADDRESS							
VI. FACILITY LOCATION							

II. POLLUTANT CHARACTERISTICS							
INSTRUCTIONS: Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of bold-faced terms.							
SPECIFIC QUESTIONS		MARK "X" YES NO FORM ATTACHED		SPECIFIC QUESTIONS		MARK "X" YES NO FORM ATTACHED	
A. Is this facility a publicly owned treatment works which results in a discharge to waters of the U.S.? (FORM 2A)			X		B. Does or will this facility (either existing or proposed) include a concentrated animal feeding operation or aquatic animal production facility which results in a discharge to waters of the U.S.? (FORM 2B)		X
C. Is this a facility which currently results in discharges to waters of the U.S. other than those described in A or B above? (FORM 2C)		X		NA	D. Is this a proposed facility (other than those described in A or B above) which will result in a discharge to waters of the U.S.? (FORM 2D)		X
E. Does or will this facility treat, store, or dispose of hazardous wastes? (FORM 3)		X		X	F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4)		X
G. Do you or will you inject at this facility any produced water or other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)				X	H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)		X
I. Is this facility a proposed stationary source which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)				X	J. Is this facility a proposed stationary source which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)		X

III. NAME OF FACILITY	
1	SKIP
MERCK & CO. INC.	

IV. FACILITY CONTACT	
A. NAME & TITLE (last, first, & title)	
2 Puchalski Tom Mgr Envir Cntl	
B. PHONE (area code & no.)	
201 574 5361	

V. FACILITY MAILING ADDRESS	
A. STREET OR P.O. BOX	
3 P O Box 2000	
B. CITY OR TOWN	
4 Rahway	
C. STATE	D. ZIP CODE
NJ	07065

VI. FACILITY LOCATION	
A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER	
5 126 E. Lincoln Avenue	
B. COUNTY NAME	
Union	
C. CITY OR TOWN	
6 Rahway	
D. STATE	E. ZIP CODE
NJ	07065
F. COUNTY CODE (if known)	

VII. SIC CODES (4-digit, in order of priority)

A. FIRST				B. SECOND			
7	2	8	0	7	2	8	7
(specify) Chemicals and allied products				(specify) Agricultural Pesticide			
C. THIRD				D. FOURTH			
2	8	3	3	7			
(specify) Medicinal chemicals				(specify) NA			

VIII. OPERATOR INFORMATION

A. NAME												B. Is the name listed in item VIII-A also the owner?	
8 Merck & Co. Inc.												<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
C. STATUS OF OPERATOR (Enter the appropriate letter into the answer box; if "Other", specify.)													
F - FEDERAL S - STATE P - PRIVATE				M - PUBLIC (other than federal or state) O - OTHER (specify)				P (specify)				D. PHONE (area code & no.)	
								A 201 574 4000					
E. STREET OR P.O. BOX													
P O Box 2000													
F. CITY OR TOWN													
Rahway													
G. STATE													
NJ													
H. ZIP CODE													
07065													
IX. INDIAN LAND													
Is the facility located on Indian lands?													
<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO													

X. EXISTING ENVIRONMENTAL PERMITS

A. NPDES (Discharges to Surface Water)												D. PSD (Air Emissions from Proposed Sources)											
9 N NJ 0002348												9 P											
B. UIC (Underground Injection of Fluids)												E. OTHER (specify)											
9 U												(specify)											
C. RCRA (Hazardous Wastes)												E. OTHER (specify)											
9 R												(specify)											

XI. MAP

Attach to this application a topographic map of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers and other surface water bodies in the map area. See instructions for precise requirements. (See Figure A-1 and A-2)

XII. NATURE OF BUSINESS (provide a brief description)

Pharmaceutical research and manufacture of agricultural, animal, and human health products.

XIII. CERTIFICATION (see instructions)

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME & OFFICIAL TITLE (type or print)		B. SIGNATURE		C. DATE SIGNED	
William Horne Vice President - Manufacturing		William Horne		2/9/83	

COMMENTS FOR OFFICIAL USE ONLY

--	--	--	--	--	--	--	--	--	--	--	--

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

AIR PERMITS*

361	13726	29753	35224	41646
362	13727	29754	35511	41729
533	13728	29755	35512	42496
1451	15166	29756	35635	43451
2043	15222	29757	36153	44059
2075	15223	29758	36400	44064
2454	16016	29759	36401	44065
2973	16401	29760	36402	44066
2974	18766	29761	36403	44124
2975	19072	29762	36406	44298
2977	19473	30410	36407	44299
3042	19474	30411	36950	44300
3043	19475	30412	37741	44301
3171	19476	30413	38185	44302
3935	19477	30414	39548	44303
5289	21103	30449	39549	44304
8096	21152	30450	39550	44305
9512	21184	30999	39551	44306
11078	21712	31281	39552	44307
12248	22313	31330	39553	44308
12298	22360	31590	39554	44318
12882	22483	34119	39555	46003
12883	22484	34120	39557	46508
13076	22832	34121	39558	46226
13285	22972	34122	39559	46265
13408	22973	34123	39560	46880
13619	22975	34124	39561	46881
13652	23331	34125	39562	46882
13653	29369	34126	39563	46883
13654	29745	34127	39564	46884
13656	29746	34128	39565	48039
13657	29747	34148	39566	48040
13721	29748	34346	39885	48041
13722	29749	34893	40619	48042
13723	29750	34894	40620	48043
13724	29751	34895	41218	
13725	29752	35223	41645	

CENTRAL JERSEY REGIONAL AIR POLLUTION CONTROL AGENCY

001-L-79

002-L-79

003-L-79

* Number of permits changes on a monthly basis

TABLE A-1

FOR OFFICIAL USE ONLY

APPLICATION APPROVED DATE RECEIVED (yr., mo., & day)

COMMENTS

II. FIRST OR REVISED APPLICATION

Place an "X" in the appropriate box in A or B below (mark one box only) to indicate whether this is the first application you are submitting for your facility or revised application. If this is your first application and you already know your facility's EPA I.D. Number, or if this is a revised application, enter your facility's EPA I.D. Number in Item I above.

A. FIRST APPLICATION (place an "X" below and provide the appropriate data)

☐ 1. EXISTING FACILITY (See instructions for definition of "existing" facility. Complete item below.)

☐ 2. NEW FACILITY (Complete item below.)

C

8

YR. MO. DAY

FOR EXISTING FACILITIES, PROVIDE THE DATE (yr., mo., & day) OPERATION BEGAN OR THE DATE CONSTRUCTION COMMENCED (use the boxes to the left)

YR. MO. DAY

FOR NEW FACILITIES, PROVIDE THE DATE (yr., mo., & day) OPERATION BEGAN OR IS EXPECTED TO BEGIN

B. REVISED APPLICATION (place an "X" below and complete item 1 above)

☒ 1. FACILITY HAS INTERIM STATUS

☐ 2. FACILITY HAS A RCRA PERMIT

III. PROCESSES - CODES AND DESIGN CAPACITIES

A. PROCESS CODE - Enter the code from the list of process codes below that best describes each process to be used at the facility. Ten lines are provided for entering codes. If more lines are needed, enter the code(s) in the space provided. If a process will be used that is not included in the list of codes below, the describe the process (including its design capacity) in the space provided on the form (Item III-C).

B. PROCESS DESIGN CAPACITY - For each code entered in column A enter the capacity of the process.

1. AMOUNT - Enter the amount.

2. UNIT OF MEASURE - For each amount entered in column B(1), enter the code from the list of unit measure codes below that describes the unit of measure used. Only the units of measure that are listed below should be used.

PROCESS	PROCESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY	PROCESS	PROCESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
Storage:			Treatment:		
CONTAINER (barrel, drum, etc.)	S01	GALLONS OR LITERS	TANK	T01	GALLONS PER DAY OR LITERS PER DAY
TANK	S02	GALLONS OR LITERS	SURFACE IMPOUNDMENT	T02	GALLONS PER DAY OR LITERS PER DAY
WASTE PILE	S03	CUBIC YARDS OR CUBIC METERS	INCINERATOR	T03	TONS PER HOUR OR METRIC TONS PER HOUR; GALLONS PER HOUR OR LITERS PER HOUR
SURFACE IMPOUNDMENT	S04	GALLONS OR LITERS	OTHER (Use for physical, chemical, thermal or biological treatment processes not occurring in tanks, surface impoundments or incinerators. Describe the processes in the space provided; Item III-C.)	T04	GALLONS PER DAY OR LITERS PER DAY
Disposal:					
INJECTION WELL	D79	GALLONS OR LITERS			
LANDFILL	D80	ACRE-FEET (the volume that would cover one acre to a depth of one foot) OR HECTARE-METER			
LAND APPLICATION	D81	ACRES OR HECTARES			
OCEAN DISPOSAL	D82	GALLONS PER DAY OR LITERS PER DAY			
SURFACE IMPOUNDMENT	D83	GALLONS OR LITERS			
UNIT OF MEASURE	UNIT OF MEASURE CODE	UNIT OF MEASURE	UNIT OF MEASURE	UNIT OF MEASURE CODE	UNIT OF MEASURE
GALLONS	G	LITERS PER DAY	V	ACRE-FEET	A
LITERS	L	TONS PER HOUR	D	HECTARE-METER	F
CUBIC YARDS	Y	METRIC TONS PER HOUR	W	ACRES	B
CUBIC METERS	C	GALLONS PER HOUR	E	HECTARES	G
GALLONS PER DAY	U	LITERS PER HOUR	H		

EXAMPLE FOR COMPLETING ITEM III (shown in line numbers X-1 and X-2 below): A facility has two storage tanks, one tank can hold 200 gallons and the other can hold 400 gallons. The facility also has an incinerator that can burn up to 20 gallons per hour.

LINE NUMBER	A. PROCESS CODE (from list above)	B. PROCESS DESIGN CAPACITY	FOR OFFICIAL USE ONLY	LINE NUMBER	A. PROCESS CODE (from list above)	B. PROCESS DESIGN CAPACITY	FOR OFFICIAL USE ONLY
1	2	3	4	5	6	7	8
X-1	S 0 2	600	G	5			
X-2	T 0 3	20	E	6			
1	S 0 1	445,170 *	G	7			
	S 0 2	1,121,000	G	8			
3	T 0 1	3,000,000	U	9			
4				10			

EPA I.D. NO. (enter from page 1)

F N J D O O 1 3 1 7 0 6 4 6

V. FACILITY DRAWING

All existing facilities must include in the space provided on page 5 a scale drawing of the facility (see instructions for more detail). See Figure A-2.

VI. PHOTOGRAPHS

All existing facilities must include photographs (aerial or ground-level) that clearly delineate all existing structures; existing storage treatment and disposal areas; and sites of future storage, treatment or disposal areas (see instructions for more detail). See Figure A-3.

VII. FACILITY GEOGRAPHIC LOCATION

LATITUDE (degrees, minutes, & seconds)

40 37 00 0

LONGITUDE (degrees, minutes, & seconds)

074 16 00 0

VIII. FACILITY OWNER

☒ A. If the facility owner is also the facility operator as listed in Section VIII on Form 1, "General Information", place an "X" in the box to the left and skip to Section IX below.

B. If the facility owner is not the facility operator as listed in Section VIII on Form 1, complete the following items:

1. NAME OF FACILITY'S LEGAL OWNER

2. PHONE NO. (area code & no.)

3. STREET OR P.O. BOX

4. CITY OR TOWN

5. ST.

6. ZIP CODE

IX. OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME (print or type)

B. SIGNATURE

C. DATE SIGNED

X. OPERATOR CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME (print or type)

B. SIGNATURE

C. DATE SIGNED

William Horne
 Vice President - Manufacturing

William Horne

2/9/83

SECTION B
FACILITY DESCRIPTION

This section provides a general description of the hazardous waste management facility as required by 40 CFR 122.25(a). This description is intended to acquaint the permit application reviewer/permit writer with an overview of the facility. More complete details can be found in other parts of this permit application.

B-1 General Description [40 CFR 122.25(a)(1)]

The Rahway site of Merck & Co., Inc., occupies 210 acres in Union County, New Jersey on U.S. Route 1. It is located approximately fifteen miles southwest of New York City and six miles south of Newark International Airport.

Approximately one-half of the site is within the Rahway city limits and the remainder is within the City of Linden. The street address is:

Merck & Co., Inc.
126 East Lincoln Avenue
Rahway, New Jersey 07065

The mailing address is:

Merck & Co., Inc.
P.O. Box 2000
Rahway, New Jersey 07065

Merck & Co., Inc., headquartered in Rahway, New Jersey, is an international corporation engaged primarily in the business of discovering, developing, producing, and marketing products and services for the maintenance of health and the restoration of the environment. The Rahway site includes chemical production facilities, product development and service facilities used in pharmaceutical or agricultural pesticide preparation, and extensive research facilities. The standard industrial classification (SIC) code numbers are:

2800 = Chemicals and allied products
2833 = Medicinal chemicals and botanical products
2879 = Agricultural pesticides

Using both batch and continuous organic synthesis processes, products are manufactured for widespread use such as antidepressants, anthelmintics, anti-inflammatories, and antihypertensives.

Process wastewater from production facilities is collected, pretreated, and discharged to the city of Linden wastewater treatment plant. Wastewater from the laboratory and administration areas of the site is discharged to the City of Rahway wastewater treatment plant. The Rahway site handles a broad range of chemicals in laboratory and production activities, and these chemicals are classified as hazardous waste if they are spilled or discarded. Certain wastes from production and solvent recovery activities, which are also classified as hazardous wastes, flow to the on-site wastewater treatment area.

The individual responsible for hazardous waste management activities at the Rahway site is:

Mr. Thomas Puchalski
Environmental Control Manager
Phone: (201)574-5361

B-2 Topographic Map [40 CFR 122.25(a)(19)]

Plant Topography: Figure B-1 is a topographic map of the Rahway site, showing the plant boundaries, buildings, and other details. This map also shows 2-ft contour intervals of elevation, the 100-yr floodplain, and surface water. The map scale is 1 in. = 200 ft.

Surrounding Area: Figure B-2 shows the surrounding land use and topography. The site is situated in a metropolitan area and is surrounded by residential and industrial areas. Figure B-2 is a USGS map of the Perth Amboy quadrangle magnified to the required scale of 1 in. = 200 ft.

Hazardous Waste Management Boundary: Figure A-2 shows the location of all hazardous waste management facilities at the site, including both existing and proposed facilities. Not all existing facilities will be operated long-term; some will be closed during 1983 in accordance with notification dated February 17, 1983, to the Regional Administrator. The hazardous waste management facilities to be operated consist of ten container waste storage areas, 25 waste storage tanks and two treatment tanks. Four new tanks will be installed in the near future. See Fig. B-3 for the location of these facilities to be operated long-term.

All existing and proposed container, tank waste storage and treatment facilities are located outside the 100-yr floodplain which is shown in Fig. B-1.

Wind Rose: A wind rose is not available for this area; however, Table B-1 shows the wind speed vs direction for the Newark International Airport, the closest point where such information has been gathered. This information was taken from the Airport Climatological Summary prepared by the National Oceanic and Atmospheric Administration.

Access Control: The site is surrounded by fences, and all gates and entrances are monitored or locked. Each employee is issued an identification card to verify employment, and visitors are required to display visitor badges. Access control is discussed in further detail in Section F-1a. Complete security measures including fences and gates are shown in Fig. F-1.

Injection and Withdrawal Wells: There are no injection, ground water monitoring, or withdrawal wells on the site, and Merck is not aware of any within 1000 ft of the site boundaries.

Buildings, Treatment, Storage and Other Structures: Figure B-3 shows the buildings and structures on the site, the hazardous waste management areas, and that portion of the site area which drains to the on-site wastewater treatment area and then to the Linden wastewater treatment plant.

Table B-1. Annual Wind Direction and Wind Speed
(Percent Frequency of Observations) at Newark, NJ Airport

Wind Direction	Wind Speed (Knots)									Total	Avg. Speed
	0-3	4-6	7-10	11-16	17-21	22-27	28-33	34-40	Over 40		
N	.2	1.9	4.0	2.8	.4	.1				9.4	9.5
NNE	.2	1.6	2.7	1.7	.2	.0				6.4	8.9
NE	.1	1.1	1.4	.9	.1	.0	.0			3.6	8.7
ENE	.2	.9	.7	.4	.1		.0			2.2	7.6
E	.3	1.2	1.2	.4	.0	.0				3.1	7.2
ESE	.2	1.1	1.4	.5	.0	.0				3.2	7.5
SE	.2	1.5	2.2	.9	.0					4.8	7.9
SSE	.1	1.3	1.6	.6	.0					3.7	7.7
S	.4	3.3	3.0	.9	.1	.0				7.8	7.2
SSW	.4	2.8	2.3	1.2	.1	.0				6.8	7.7
SW	.4	3.0	4.5	2.5	.3	.0	.0			10.7	8.6
WSW	.4	2.5	3.6	2.5	.4	.1	.0	.0		9.3	9.1
W	.4	2.2	3.0	2.7	.7	.2	.0			9.1	9.9
WNW	.2	1.1	2.4	3.5	1.3	.3	.0			8.8	11.9
NW	.1	.6	1.9	3.1	.8	.2	.0			6.7	12.0
NNW	.1	.4	1.2	1.6	.3	.0				3.5	10.9
Calm	.6									.6	0.0
Total	4.6	26.4	37.1	26.1	4.8	.9	.1	.0		100.0	9.1

All Weather: All Wind Observations

Period of Record: 1965-1974, 29213 Observations

Values are rounded to nearest tenth, but not adjusted to make their
sums exactly equal to column or row totals.

Runoff Control Systems: Figure B-3 shows the location of the sewage drainage areas. Sewers in the shaded area drain to Linden, and sewers in the remainder of the site drain to Rahway. The chemical sewers are directed to sumps (Rahway side) or to a wet-well pumping system (Linden side). Section F-4b discusses runoff control in greater detail.

Access and Internal Roads: Figure B-4 shows the roads within the plant site and those leading into the site.

Storm, Sanitary, and Process Sewer(s): The Rahway site has separate sanitary /process and stormwater sewer systems. Figure B-3 shows the area serviced by both sewer systems. All sewer wastes are eventually sent to the Linden-Roselle or Rahway wastewater treatment plants depending on the location within the site. A complete set of prints for all sewers at the facility is provided in Volume II as Appendix B-1.

Loading and Unloading Areas: All wastes handled at the plant are generated on site; none are brought into the plant from off site, so there are no unloading areas. There is a central internal transfer operation where drums of waste liquids are emptied and the contents are pumped into bulk storage tanks. Wastes can be transferred into trucks or tank wagons at most of the storage areas for shipment to off-site treatment facilities or for intra-plant transfer.

Fire Control Facilities: Fire control facilities, including fire hydrants and fire extinguishers, are discussed in Section G and shown in Fig. G-4.

Surface Waters: The only surface waters within 1000 ft of the plant site are Kings Creek and the Rahway River which are shown in Figs. B-1 and B-2.

Flood Control/Drainage Barriers: General drainage on the plant site is toward the creek and river. The container, tank storage, and treatment areas are all located outside the 100-yr floodplain (see Fig. B-1). There is no need to provide flood control barriers.

B-3 Location Information [40 CFR 122.25(a)(11) and 264.18]

B-3a Seismic Standard

Because this is an existing rather than a new facility, the seismic standard does not apply.

B-3b Floodplain Standard

The Rahway site is located approximately 0.5 miles north of the Rahway River. Kings Creek traverses through the site, eventually flowing into the Rahway River approximately one mile southeast of the site. The 100-yr floodplain elevation at the plant site is approximately 16 ft mean sea level (MSL). The elevation contours appear in Fig. B-1.

Figure B-5a shows the Federal Insurance Administration (FIA) flood map for the city of Linden, New Jersey and Fig. B-5b shows the FIA flood map for the city of Rahway, New Jersey. In both Figs. B-5a and B-5b, zones labeled "A" indicate those areas inundated by the 100-yr flood. Only a small portion of the plant site at the uppermost headwaters of Kings Creek is located within the 100-yr floodplain.

B-4 Traffic Patterns [40 CFR 122.25(a)(10)]

Access to the Rahway site is from Linden and Rahway city streets through one of the five entrances described in Section F-1a(1)b and shown in Fig. B-4.

Figure B-4 also shows the on-site traffic patterns. All main roads within the site are two-way. Within the site, traffic vehicles consist primarily of fork lifts, trucks, and other company personnel transport vehicles. The number of vehicles on plant roads varies from none to several, depending on the time of day. Vehicle traffic on this site is relatively light.

Traffic Control: Traffic is controlled by stop signs, pedestrian crossing signs, and 15 mph speed limit signs (see Fig. B-4).

SECTION C
WASTE CHARACTERISTICS

This section describes the chemical and physical nature of the hazardous waste (HW) stored at the Rahway site of Merck & Co., Inc., and the Waste Analysis Plan for evaluating the wastes to assure that sufficient information is available for their safe handling. The information submitted is in accordance with the requirements of 40 CFR 122.25 (a) and 40 CFR 264.13.

C-1 CHEMICAL AND PHYSICAL ANALYSES [40 CFR 122.25(a) (2)]

Hazardous wastes are stored at the site in a variety of containers and a number of storage tanks. Hazardous wastes are also treated at the facility in two neutralization wastewater pretreatment tanks.

The wastes are generated from manufacturing, laboratory, and from pilot plant activities located throughout the site. Manufacturing is carried out in both dedicated (single product) and multipurpose facilities. Multipurpose facilities are designed to accommodate many processes. Depending upon such factors as regulatory and patent status, and the needs of the medical profession, pharmaceutical products may be added to or deleted from the production schedule or shifted from one process unit to another during designated periods of the year. It is clear that solvent waste emanating from multipurpose manufacturing facilities will vary. Combined solvent waste streams from multipurpose facilities will reflect the characteristics of this manufacturing activity in respect to quantity and composition.

Research activities embracing virtually all branches of medical science coupled with extensive quality control functions comprise the bulk of laboratory activities at the site. Small and large scale pilot plant activities also take place. By nature these operations will change on a daily basis, hence the waste streams will vary in respect to kind and quantity also on a daily basis.

C-2

The types of hazardous waste, the estimated annual quantity that may be generated, along with the type of storage and treatment process used is summarized in Section A. Because of the variability of the waste produced on site, Merck has, by necessity, chosen to classify and manage the waste by category. Waste handled in each HWM process are as follows:

C-1a Containers

There are eight types of hazardous wastes stored in containers at the Rahway Plant: chlorinated spent solvents, non-chlorinated spent solvents, mixtures of chlorinated and non-chlorinated solvents, still bottoms from the recovery of various solvents, reactive wastes, discarded commercial chemicals, waste corrosives, and waste oils. The specific waste that can be stored in containers are listed in Table C-2. This list includes not only wastes that are currently handled, but also wastes that may be generated in the future as a result of the extensive research/development activities.

Chlorinated spent solvents are generated from pilot plant, laboratory, and production activities. Though the primary type of container used for storing these wastes is the 55-gallon drum, small glass bottles subsequently placed into fibre overpack drums are also used. Since flash points of the wastes may be less than 140F, all chlorinated solvents are managed as ignitable waste, in compliance with all storage and operational requirements for ignitable hazardous wastes. The wastes are assigned the EPA HW Codes D-001 or F-002 as appropriate.

Non-chlorinated spent solvents are also generated in pilot plant, laboratory and production activities. Again the primary type of container used for storage is the 55-gallon drum. Smaller containers are stored in fiber overpack drums. Since the flash points of these wastes are less than 140F, the non-chlorinated solvents are handled in a manner that fully complies with the requirements for managing ignitable wastes. These wastes are assigned the EPA HW Codes F003, F005, and D001 as required.

C-3

Still bottoms containing solvents capable of imparting a flash point of 140F or less are generated from the recovery of various solvents as well as from experiments in the laboratory area. In general these wastes are listed Subpart D wastes having EPA HW codes F-002, F-003, and F-005, although in some cases they are classified D-001. Fifty-five gallon drums are the primary form of containment for these wastes which are managed in accord with the storage and operational requirements for ignitable hazardous wastes.

Reactive wastes may be generated from pilot plant, laboratory and production activities and are stored in 55-gallon drums as well as smaller containers which are segregated and kept in overpacks. These wastes are handled in a manner that will protect them from conditions that could cause the wastes to react and are assigned the EPA HW Code D-003.

Discarded commercial chemicals can be generated in all three areas. Small quantities of materials from laboratory activities are stored in small ampules or glass bottles and are placed in overpack drums. Large quantities of discarded commercial chemicals are stored in 55-gallon drums. These wastes are assigned specific EPA HW Codes as per 40 CFR 261.33 and are stored in a manner that fulfills all the requirements in accord with the characteristics with the waste.

Waste corrosives (D002) are also generated throughout the site. These wastes are corrosive because they are either aqueous having a pH less than or equal to 2 or greater than or equal to 12.5, or are liquids which corrode steel at a rate greater than 0.250 in. per year at 55C. Wastes not treated as discussed in C-1c are placed in individual containers, overpacked in 15-gallon drums, and kept segregated from other wastes.

Waste oils are generated from lubrication fluids for various machinery.

C-4

Laboratory, pilot plant, and production activities also result in the generation of mixtures of chlorinated and non-chlorinated solvents that are stored in 55-gallon drums. Because of their ignitable characteristic (flash point less than 140F) these mixtures are handled in a manner that fully complies with all requirements for ignitable hazardous wastes. These wastes are assigned EPA HW Codes D001, F002, F003, and F005 as appropriate.

C-1b Tanks

There are five types of hazardous waste stored in tanks at the Rahway site: non-chlorinated spent solvents, chlorinated spent solvents, mixtures of the chlorinated and non-chlorinated, corrosive wastes, and waste oils. Wastes stored in tanks originate directly from a manufacturing process or from containers. Table C-2 lists the major solvents in the waste solvent holding tanks along with the respective flash points specific gravities. Since the wastes will frequently flash points less than 140F, all wastes are assigned the EPA HW Code D-001. In addition to D-001, other HW Codes are assigned based on composition.

Non-chlorinated wastes, chlorinated wastes, and mixtures of both can be stored in any of the registered hazardous waste tanks at the site. All tanks are designed and operated to comply with the requirements for ignitable wastes.

Corrosive wastes (process waste waters) are handled in tanks TA-100A, TA-110, and TA-120 prior to being neutralized and sent off-site to a POTW. The wastes are aqueous and can have a pH of 2 or less or equal to or greater than 12.5. The wastes are consequently assigned the EPA HW Code D-002, but can also contain low levels of other hazardous wastes as indicated in Section A.

Table C-2. Major Waste Events Generated at Merck & Co., Inc., Rahway, N.J.

Solvent	Flash Point (Closed Cup °F)	Specific Gravity*
<u>Non chlorinated</u>		
Acetone	0	$d_{25}^{25} = 0.788$
Alcohol 2BA, Type T	55	
Methanol	52	$d_4^{15} = 0.796$
Benzene	12	$d_4^{15} = 0.879$
Toluene	40	$d_4^{20} = 0.866$
Isopropyl alcohol	53	$d_4^{20} = 0.785$
Acetonitrile	42	$d_4^{15} = 0.787$
t-Butyl alcohol	52	$d_4^{20} = 0.789$
n-Butanol	84	$d_4^{20} = 0.810$
Isopropyl acetate	40	$d_4^{20} = 0.870$
Carbon disulfide	-22	$d_4^{20} = 1.263$
Hexane	- 7	$d_4^{20} = 0.660$
Xylene	84	$d = 0.86$
Ether	-49	$d_4^{15} = 0.719$
Tetrahydrofuran	6	$d_4^{20} = 0.889$
Methyl ethyl ketone	21	$d_4^{20} = 0.805$
t-Butylamine	<-40°	$d_4^{20} = 0.695$

-2-

Solvent	Flash Point (Closed Cup °F)	Specific Gravity*
Heptane	25	$d_4^{20} = 0.684$
Benzaldehyde	148	$d_4^{15} = 1.050$
<u>Chlorinated</u>		
Methylene chloride	Non-Flammable	$d_4^{15} = 1.335$
Chloroform	Non-Flammable	$d_{20}^{20} = 1.484$
Monochlorobenzene	84	$d_4^{20} = 1.107$
Monochloroacetone	73 - 75°F	$d_4^{15} = 1.135$
Tetrachloroethane	Non-Flammable	$d_4^{25} = 1.387$
Orthodichlorobenzene	151	$d_4^{20} = 1.306$

* Specific gravities are given in relation to water, e.g., d_4^{20} denotes the negative densities of the solvent at 20°C and water at 4°C.

Table C-3. Railway Hazardous Waste Characteristics

Hazardous Waste No.	Description	Characteristic
F001	Chlorinated solvent	Toxic
F002	Chlorinated solvent	Toxic
F003	Non-chlorinated solvent	Ignitable
F004	Non-chlorinated solvent	Toxic
F005	Non-chlorinated solvent	Toxic/ignitable
All U's	Specific compounds	{ Corrosive/toxic Ignitable/reactive
All P's	Specific compounds	
D-001	Flammable solvent	Ignitable
D-002	Wastewater	Corrosive
D-003	Spent Raney nickel catalyst	Reactive
D-003	Sulfur cake from dichlorothiazide	

ATTACHMENT A-18

ATTACHMENT A-18

Table C-3. RAHWAY HAZARDOUS WASTE CHARACTERISTICS

Hazardous Waste No.	Description	Characteristic
F001	Chlorinated solvent	Toxic
F002	Chlorinated solvent	Toxic
F003	Non-chlorinated solvent	Ignitable
F004	Non-chlorinated solvent	Toxic
F005	Non-chlorinated solvent	Toxic/ignitable
All U's	Specific compounds	Corrosive/toxic
All P's	Specific compounds	Ignitable/reactive
D-001	Flammable solvent	Ignitable
D-002	Wastewater	Corrosive
D-003	Spent Raney nickel catalyst	Reactive
D-003	Sulfur cake from dichlorothiazide	
All X's	Waste oils	Toxic

C-1c

TREATMENT

Corrosive process wastes are treated on site. The corrosive wastes are process waste waters. Continuous pH monitoring (pH electrode meter) demonstrates that the pH of this waste can range from a value of less than 2 to a value greater 12.5. This waste is assigned a EPA HW Code D-002, and can contain low levels of hazardous wastes as indicated in Section A. The wastes are neutralized in two tanks prior to being sent via public sewer to the Linden-Roselle Treatment Plant.

Item 1

C-1d

HAZARDOUS CHARACTERISTICS

The hazardous characteristics of the various wastes are summarized in Table C-3. Because of the highly variable activity at the site, Merck finds it necessary to determine the waste characteristic through knowledge of the composition of the waste. This knowledge is established through procedures discussed under Waste Analysis Plan in Section C-2. The adequacy of this system is supported by the fact that there have been no significant incidents at the site that are attributable to the improper management of hazardous wastes.

In general, chlorinated, non-chlorinated and mixtures of both are handled as ignitable waste. An examination of flash points listed in Table C-2 shows that mixtures of these wastes may have flash points less than 140°F. The policy represents a most conservative position as it would apply even to mixture not satisfying the EPA characteristic of ignitability.

The characteristic of corrosiveness can be determined both through knowledge of the waste stream composition and measurement of pH, as in the case of process waste water.

SECTION D
PROCESS INFORMATION

The information provided in this section is submitted in accordance with the requirements of 40 CFR 122.25(b)(1) through (7). Other regulations addressed to complete this section include 40 CFR 264 Subpart I 264.170, 264.171, 264.172, 264.173, 264.175, 264.176, 264.177; Subpart J 264.190, 264.191, 264.192, 264.198, and 264.199.

This section discusses specific process information for storage and handling of hazardous wastes in containers and tanks. Figure A-2 lists all hazardous waste management facilities at the Rahway plant, including both existing and proposed facilities, and shows their locations. Not all facilities identified on Fig. A-2 will be operated long-term; some will be closed during 1983 in accordance with notification dated February 17, 1983 to the Regional Administrator, and a notification dated April 27, 1984 to NJDEP. Sections D-1 and D-2 deal with those facilities that are to be operated long-term and require Part B permitting.

Closure will be implemented in accordance with the existing closure plan and in compliance with 40 CFR 265.110 through 265.115 and 265.197. When closure is complete, Merck will submit certification to the EPA Regional Administrator that closure has been completed.

D-1 Containers [40 CFR 122.25(b)(1) and 264 Subpart I]

D-1a Containers with Free Liquids

Nine areas (listed on Table D-1) will be used for the storage of hazardous liquids in containers at Merck & Co., Inc., in Rahway, New Jersey.* All areas meet the requirements for permitting under Part B of RCRA.

*One area will be used for the storage of hazardous solids in containers.

Date: 06/08/84

Revision No.: 1

2

Table D-1. Dimensions and Maximum Capacities in Container
Storage Areas (Rahway, NJ)

<u>Area No.</u>	<u>Dimensions (ft.)</u>	<u>Maximum Storage Capacity</u>
1 ^a	25 X 25	80 Drums
2	73 X 84	785 Drums
3	100 X 100	1408 Drums
7	20 X 58	160 Drums
11	44 X 11	84 Drums
13	16 X 104	213 Drums
14	13 X 60	100 Drums
16	20 X 44	112 Drums
18	20 X 44	112 Drums
19	51 X 107	698 Drums

^aArea holding solid wastes only

D-2 Tanks [40 CRF 122.25(b)(2)]

D-2a Description of Tanks

Twenty-five tanks presently provide storage for wastes generated during pharmaceutical production, research, and wastewater treatment at Merck's Rahway Plant. In addition, two 13,000-gallon tanks are used for neutralization treatment. Two 20,000-gallon tanks and two 25,000-gallon tanks are to be added in the near future for storage, bringing the total to thirty-one tanks. All of the tanks are covered. Table D-3 gives holding capacities and dimensions for all 27 existing waste tanks.

The 31 tanks are divided into two classes: solvent waste tanks and aqueous waste tanks used in plant wastewater treatment. Tanks 100A, 110, and 120 store aqueous wastes from process areas, drains in waste handling areas, and any other contaminated waters generated in the factory area of the plant. Tanks 130 and 135 are used to neutralize wastewater before it is discharged to the municipal sewer. All remaining tanks hold solvent wastes.

Table D-4 lists the most common solvents in the waste solvent holding tanks along with their respective specific gravities. These solvents may be held alone or in various combinations with any other solvent in any waste solvent holding tank. Small quantities of other solvents may be generated by research activities and stored in these tanks.

Table D-5 gives the material specifications, original shell thicknesses, construction codes, and tensile strengths for each waste tank where available. Specifications in Table D-5 reflect manufacturer's data on the tanks when they were new. Present shell/liner thicknesses are calculated and presented in Section D-2(b). Figures D-14 through D-32 show the piping and instrument configuration of each storage tank and provide specifics on tank supports and man ways. These figures serve as P&IDs for each tank. Tank foundations are designed to Merck standards to sufficiently support the weight of the tanks. Specifics on tank foundations are listed along with diking and drainage details in the tank plot plans included in Section D-2c.

Table D-3. Tank Capacities and Dimensions
Merck & Co., Inc., Rahway, NJ

Tank No.	Type	Capacity (gal)	Dimensions	
			Overall Length (ft - in)	Diameter* (ft - in)
✓101	H,B	10,600	28 - 10	8 - 0
✓102	H,B	10,600	28 - 10	8 - 0
✓103	H,B	10,600	28 - 10	8 - 0
✓104	H,B	10,600	28 - 10	8 - 0
✓105**	V,A	4,800	7 - 6**	10 - 3/4
✓100A	V,A	300,000	23 - 10	50 ID
✓110	V,A	300,000	23 - 10	50 ID
✓120	V,A	300,000	23 - 10	50 ID
✓130	V,A	13,000	12 - 0	15 - 0
✓135	V,A	13,000	12 - 0	15 - 0
✓10ML	H,A	10,000	25 - 6	8 - 0
✓101	H,B	5,000	13 - 3	8 - 0
✓103	H,B	5,000	13 - 3	8 - 0
✓105	H,B	10,000	26 - 6	8 - 0
✓108	H,B	10,000	26 - 6	8 - 0
✓131	H,A	5,000	17 - 0	8 - 0
✓139	H,A	5,000	17 - 0	8 - 0
✓140	H,A	5,000	17 - 0	8 - 0
✓108	H,A	1,000	8 - 0	5 - 4
✓190	H,A	1,000	8 - 0	5 - 4
✓191	H,A	1,000	8 - 0	5 - 4
✓2101	V,A	2,000	9 - 0	7 ID
✓2103	V,A	2,000	9 - 0	7 ID
✓2301	H,A	5,000	14 - 0	8 - 6
✓2303	H,A	5,000	14 - 0	8 - 6
✓774A	V,A	3,358	9 - 6	7 - 2
old fuel tank	H,A	5,000		

H = Horizontal
V = Vertical
B = Buried (gravel covered in diking)
A = Above ground
ID = Inside diameter

*Diameters given as outside tank diameters excluding tank jackets unless otherwise noted.

**Tank 105 has a 120° cone shaped hopper on its bottom, dimension for overall length represents straight side dimension.

Table D-4. Solvents Generated at Me Co., Inc.
Rahway, NJ

Solvents	Specific Gravity ¹
<u>Nonchlorinated</u>	
✓ Acetone	$d_{25}^{25} = 0.788$
Alcohol 23A, Type 7	
✓ Methanol	$d_4^{15} = 0.796$
✓ Benzene	$d_4^{15} = 0.879$
✓ Toluene	$d_4^{20} = 0.866$
✓ Carbon disulfide	$d_4^{20} = 1.263$
Isopropyl alcohol	$d_4^{20} = 0.785$
Isopropyl acetate	$d_4^{20} = 0.870$
✓ Acetonitrile	$d_4^{15} = 0.737$
t-Butyl alcohol	$d_4^{20} = 0.789$
✓ n-Butanol	$d_4^{20} = 0.810$
✓ Hexane	$d_4^{20} = 0.660$
Xylene	$d = 0.86$
Ether	$d_4^{15} = 0.719$
✓ Tetrahydrofuran	$d_4^{20} = 0.889$
✓ Methyl ethyl ketone	$d_4^{20} = 0.805$
t-Butylamine	$d_4^{20} = 0.695$
Heptane	$d_4^{20} = 0.684$
Benzaldehyde	$d_4^{15} = 1.050$
<u>Chlorinated</u>	
Methylene chloride	$d_4^{15} = 1.335$
Monochloroacetone	$d_4^{15} = 1.135$
Chloroform	$d_{20}^{20} = 1.484$
Monochlorobenzene	$d_4^{20} = 1.107$
Tetrachloroethane	$d_4^{25} = 1.587$
Ortho-dichlorobenzene	$d_4^{20} = 1.306$

¹Specific gravities are given in relation to water, e.g., d_4^{20} denotes the relative densities of the solvent at 20°C and water at 4°C.

084-7-D-2 (FINAL)

D-2c Tank Management Practices

Simplified process flow diagrams are shown for all tanks in Figs. D-33 through D-35. Flow rates are not shown since they vary based on the batch size of the processes from which the wastes are generated. Figure D-33 is a generalized flow diagram for hazardous waste storage tanks that handle solvent wastes in production areas. Any production area tank can be altered to transfer or accept wastes in any manner shown on Figure D-33, with the exception of transfer to a railroad tank car which is only possible from tank 1QML. Many of the tanks do not presently have permanent connections to transfer and accept wastes in every manner described in Fig. D-33. However, they can be readily altered to do so by using temporary connections and hoses or by adding permanent piping and connections. Each tank area may be used as a truck or drum loading and unloading area with aid use of temporary connections. In several tank areas, permanent transfer connections are present as shown in the tank diagrams and plot plans.

Solvent wastes from chemical processing are normally collected in drums or one of the production area tanks. For most storage tanks the wastes are normally routed to the environmental control area when the production area tank is filled to near capacity. This is not the case for tank 5774A, which normally holds spent ortho-dichlorobenzene which will be recovered by batch distillation. Wastes are transferred to the environmental control area via waste transfer wagon or drum. Pumping waste directly to the environmental control area from tanks 1190, 1191, 708, 859, 860, 2101, 2103, 2301, and 2303 is planned for the near future. Other storage tanks may also have lines run directly to the environmental control area in the future.

Figure D-34 is the process flow diagram for the environmental control area. Dashed lines on this figure represent future planned piping additions. Wastes are normally segregated into chlorinated solvents, unchlorinated solvents, low boilers, and toluene. Most wastes are transferred by truck from the environmental control area to an outside contractor for disposal.

I-1b Partial and Final Closure Activities

Merck's Rahway Plant manufactures chemicals and intermediates and is expected to continue in operation indefinitely. New processes and products are added as others are discontinued, so final closure of the Rahway site and hazardous waste management facilities is unforeseeable. However, in the event that future circumstances or decisions force Merck to discontinue any hazardous waste management activities, Section I-1d of this closure plan presents the procedures for final closure of each of the areas. Any modifications to the existing facility equipment, structures, and instruments or procedures related to the management of the various portions of the facility will result in Merck revising the closure plan accordingly.

At a maximum Merck expects the operation to consist of storage of waste in 3,752 drums and 29 tanks and treatment of waste in 2 tanks during the life of the facility. Section I-1c of the closure plan describes the maximum inventory of wastes in storage at any given time during the operating life of the Merck Rahway Plant. Merck will dispose of all hazardous wastes as described in Section I-1d.

I-1c Maximum Waste Inventory

The following table shows the maximum inventory of wastes in storage at any given time during the operating life of the Merck Rahway Plant. The totals shown may vary somewhat, depending on the exact size of the container storage areas.

<u>Containers</u>	<u>Drums</u>	<u>Gallons</u>
Spent liquids	3,672	201,960
Solids	<u>80</u>	<u>4,400</u>
	3,752	206,360

Date: 06/08/84

Revised No.: 1

<u>Tanks</u>	<u>Gallons</u>
Nonchlorinated solvents	50,000
Chlorinated solvents	165,000
Wastewater	900,000
Treatment	26,000

I-1d Inventory Removal and Disposal or Decontamination of Equipment

The following 27 tanks are currently operational, handling various materials including water-miscible solvents, chlorinated and nonchlorinated solvents, and plant effluent.

<u>Area Number</u>	<u>Tanks in Area by Equipment Numbers</u>	<u>Basic Use or Location</u>
1	801, 803, 805, 808, 831	Pilot Plant Tanks
2	2101, 2103, 2301, 2303	Near Bldg. 97
3	101, 102, 103, 104, 105	Environmental Control Area
4	708, 859, 860, 1190, 1191	Factory 12
5	100A, 110, 120, 130, 135	Wastewater Treatment
6	10 ML	Near Bldg 28A
7	5774A	ODCB Holding Tank
8	Old fuel tank	At trash incinerator

Four additional tanks will be constructed on site after a permit is received; two with a volume of 20,000 gallons each and two with a volume of 25,000 gallons each.

The contents of the two new 25,000-gallon tanks that will contain nonchlorinated solvents would be pumped to tank wagons. These liquids would be sent off site for

PART A SUMMARY SHEET

<u>AREA NUMBER</u>	<u>EQUIPMENT</u>	<u>ORIGINAL PART A CAPACITY (GALS.)</u>	<u>REVISED PART A CAPACITY (GALS.)</u>	<u>CHANGE (GALS.)</u>
1 T	801, 803, 805, 808, 831	35,000	35,000	0
2 T	2101, 2103, 2301, 2303	14,000	14,000	0
3 T	101, 102, 103, 104, 105	45,000	45,000	0
4 T	852, 853, 859, 860, 708, 1190, 1191	23,000	13,000	-10,000 (Closure: 852, 853)
5 T (w w T u)	100A, 110, 120	900,000	900,000	0
6 T	10 ML	10,000	10,000	0
7 T	5774A	3,000	3,000	0
8 T	104	2,000	0	-2,000 (Closure: 104)
9 T	38, 39, 40, 41	80,000	0	-80,000 (Totally Enclosed: 38, 39 Closure: 40, 41)
10 T	10M	10,000	0	-10,000 (Closure: 10M)
Solvent Tank	Solvent Tank, 103, 104	11,500	0	-11,500 (Closure: 103, 104, Solvent Tank)

ATTACHMENT A-36

PART A SUMMARY SHEET

<u>AREA NUMBER</u>	<u>EQUIPMENT</u>	<u>ORIGINAL PART A CAPACITY (GALS.)</u>	<u>REVISED PART A CAPACITY (GALS.)</u>	<u>CHANGE (GALS.)</u>
Old Fuel Tank	Old Fuel Tank	5,000	5,000	0
New Tank Area 1	38, 39	0	50,000	+50,000 (Proposed: 38, 39)
New Tank Area 2	106, 107	0	40,000	+40,000 (Proposed: 106, 107)
TOTALS		1,138,500	1,115,000	-23,500

PART A REVISIONS

The Merck & Co., Inc. Rahway site is comprised of production, pilot plant and research facilities. Due to the changing nature of a research operation, the potential exists to handle materials not covered on the Part A submission in the future. The revised Part A has been expanded to include every P & U type waste although all waste types are not expected to be generated each year.

The hazardous waste incinerator listed on the original Part A has been deleted and will not be operated. A request for closure of the treatment unit was made to the Regional Administrator on February 17, 1983.

Container Storage Areas: Twenty nine storage areas are shown on Fig. A-2 of the Application. A request for closure was made to the Regional Administrator on February 17, 1983 for nine of these areas. Ten of the remaining areas meet Part B final standards, one is a proposed area and nine, which meet interim standards, must be upgraded to meet final standards. Detailed drawings will be available by July 1983 and will be forwarded to the EPA and N.J. DEP.

Please note that the actual dimensions shown may change once final design drawings are completed. This may also impact on the closure plan.

Tank Storage Areas: Fifteen storage tank areas are shown on Fig. A-2 of the Application. A request for closure was made to the Regional Administrator on February 17, 1983 for the four areas and for two tanks in a fifth area. Two new tank areas are proposed and detailed drawings will be forwarded to the EPA and N.J. DEP by July 1983.

- 8) "The use of overpacked drums as secondary containment in container storage areas 1, 2, 4, 6, 8, 9, 10 and 12 is inadequate. These areas will have to be redesigned to comply with the requirements of N.J.A.C. 7:26-10.5."

Container storage areas 4, 5, 6, 8, 9, 10, and 12 have been reclassified to accumulation areas and are deleted from the RCRA Part B Application.

- 9) "Some of the tanks need controls to prevent overfilling in accordance with N.J.A.C. 7:26-10.5(c)2, specifically tank numbers 2301, 2303, 2101, 2103, 101, 102, 103, 104, 105, 859, 860, 708, 1190, 1191, 100A, 110, 120, 130, 135, 10ML, 574A, and the old fuel tank."

Storage tanks 2301, 2303, 2101, 2103, and 5774A have level indicators and high level alarms which adequately prevent overflow. Tanks 101, 102, 103, 104, 105, 859, 860, 708, 1190, 1191, 10ML, and the old fuel tank will be retrofitted with level indicators and high level alarms.

This will be completed by September 1, 1985. Design information will be forwarded to NJDEP when it is available.

Tanks 100A, 110, 120, 130, and 135 are waste water treatment tanks, and as per my discussion with Mr. Jim Bell, they will be dropped from the permit application.



State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS WASTE MANAGEMENT

John J. Trela, Ph.D., Acting Director
401 East State St.
CN 028
Trenton, N.J. 08625
609-633-1408

Hazardous Waste Facility Permit

Under the provisions of N.J.S.A. 13:1E-1 et seq. known as the Solid Waste Management Act, this permit is hereby issued to:

Merck & Co., Inc.
126 E. Lincoln Avenue
Rahway, New Jersey 07065

For the Purpose of Operating a:

Hazardous Waste Storage Facility
Located partly in the cities of
Rahway and Linden

County:

Union

Under Facility Permit No.:

2013C

This permit is subject to compliance with all conditions specified herein and all regulations promulgated by the Department of Environmental Protection.

In no way shall the issuance of this permit be construed as a determination by the Department regarding Merck & Co., Inc. competency or reliability to operate any type of hazardous waste facility other than the type of facility for which this permit is issued.

This permit shall not prejudice any claim the State may have to Riparian land nor does it permit the registrant to fill or alter, or allow to be filled or altered, in any way, lands that are deemed to be Riparian, Wetlands, stream encroachment or flood plains, or within the Coastal Area Facility Review Act (CAFRA) zone or allow the discharge of pollutants to waters of this State without first acquiring the necessary grants, permits, or approvals from the Department of Environmental Protection or the U.S. Environmental Protection Agency.

2/20/87

Date

Frank Coolick

Acting Assistant Director

2/20/92

Expiration Date

Date: 06/08/84
Revision No.: 1

Table D-2. Hazardous Wastes Stored in Drums
Merck & Co., Rahway, NJ

EPA Waste No.	Description	Annual Generation Rate (lb/yr)
F001	The spent halogenated solvents used in degreasing, tetrachloroethylene, trichloroethylene, methylene chloride, 1,1,1-trichloroethane, carbon tetrachloride, and the chlorinated fluorocarbons, and sludges from the recovery of these solvents in degreasing operations	500*
F002	The spent halogenated solvents, tetrachloroethylene, methylene chloride, trichloroethylene, 1,1,1-trichloroethane, chlorobenzene, 1,1,2-trichloro-1,2,2-trifluoroethane, o-dichlorobenzene, trichlorofluoromethane, and the still bottoms from the recovery of these solvents	1,000,000*
F003	The spent non-halogenated solvents, xylene, acetone, ethyl acetate, ethyl benzene, ethyl ether, methyl isobutyl ketone, n-butyl alcohol, cyclohexanone, and methanol, and the still bottoms from the recovery of these solvents	1,400,000*
F004	The spent non-halogenated solvents, cresols and cresylic acid, nitrobenzene, and the still bottoms from the recovery of these solvents	1,000*
F005	The spent non-halogenated solvents, toluene, methyl ethyl ketone, isobutyl ketone, carbon disulfide, isobutanol, pyridine, and the still bottoms from the recovery of these solvents	1,300,000*
P001	3-(a-acetonylbenzyl) -4-hydroxycoumarin and salts	1
P002	N-(aminothioxomethyl)-acetamide	1
P003	Acrolein	10
P004	Aldrin	1
P005	Allyl alcohol	1*
P006	Aluminum phosphide	1
P007	5-(aminomethyl)-3-isoxazolol	1
P008	4-Aminopyridine	1
P009	Ammonium picrate	1
P010	Arsenic acid	1
P011	Arsenic pentoxide	1
P012	Arsenic trioxide	1
P013	Barium cyanide	1

*Annual generation rates given are for wastes that are stored in both tanks and containers
Annual quantities of wastes stored in containers alone are not available.

Table D-2. (Continued)

EPA Waste No.	Description	Annual Generation Rate (lb/yr)
P014	Benzenethiol	1
P015	Beryllium dust	1
P016	Bis(chloromethyl) ether	10
P017	Bromoacetone	1
P018	Brucine	1
P020	Dinoseb	1
P021	Calcium cyanide	1
P022	Carbon disulfide ✓	10,000*
P023	Chloroacetaldehyde	1
P024	p-Chloroaniline	1
P026	1-(o-Chlorophenyl)thiourea	1
P027	3-Chloropropionitrile	1
P028	Benzyl chloride	1
P029	Copper cyanide	1
P030	Cyanides(soluble cyanide salts)	1
P031	Cyanogen	1
P033	Cyanogen chloride	1
P034	4,6-Dinitro-o-cyclohexylphenol	1
P036	Dichlorophenylarsine	1
P037	Dieldrin	1
P038	Diethylarsine	1
P039	Disulfoton	1
P040	o,o-Diethyl o-pyrazinyl phosphorothionate	1
P041	Diethyl-p-nitrophenyl phosphate	1
P042	4-[1-Hydroxy-2-(methylamino)ethyl]-1,2-benzenediol	1
P043	Diisopropyl fluorophosphate	1
P044	Dimethoate	1
P045	3,3-Dimethyl-1-(methylthio)-2-butanone	1
P046	a,a-Dimethylphenethylamine	1
P047	4,6-Dinitro-o-cresol and salts	1
P048	2,4-Dinitrophenol	1
P049	2,4-Dithiobiuret	1
P050	Endosulfan	1
P051	Endrin	1
P054	Ethylenimine	1
P056	Fluorine	1
P057	Fluoroacetamide	1
P058	Fluoroacetic acid, sodium salt ✓	450
P059	Heptachlor	1
P060	Hexachlorohexahydro-exo-exo-dimethanonaphthalene	1

Annual generation rates given are for wastes that are stored in both tanks and containers
Annual quantities of wastes stored in containers alone are not available.

Date: 06/08/84
Revision No.: 1

Table D-2. (Continued)

EPA Waste No.	Description	Annual Generation Rate (lb/yr)
P062	Hexaethyl tetraphosphate	1
P063	Hydrogen cyanide	1
P064	Isocyanic acid, methyl ester	1
P065	Fulminic acid, mercury (II) salt	1
P066	Methomyl	1
P067	2-Methylaziridine	1
P068	Methyl hydrazine	1
P069	2-Methyl lactonitrile	1
P070	Aldicarb	1
P071	Methyl parathion	1
P072	a-Naphthylthiourea	1
P073	Nickel carbonyl	1
P074	Nickel cyanide	1
P075	Nicotine and salts	1
P076	Nitric oxide	1
P077	p-Nitroaniline	1
P078	Nitrogen dioxide	1
P081	Nitroglycerine	1
P082	n-Nitrosodimethylamine	1
P084	n-Nitrosomethylvinylamine	1
P085	Octamethylpyrophosphoramidate	1
P087	Osmium tetroxide	1
P088	7-Oxabicyclo(2,2,1) heptane-2-3-dicarboxylic acid	1
P089	Parathion	1
P092	Phenylmercuric acetate	1
P093	Phenylthiourea	1
P094	Phorate	1
P095	Phosgene ✓	600
P096	Phosphine	1
P097	Phosphorothioic acid, o,o-dimethyl o-[p-(dimethylamino) -sulfonyl(phenyl)] ester	1
P098	Potassium cyanide	1
P099	Potassium silver cyanide	1
P101	Propanenitrile	1
P102	Propargyl alcohol	1
P103	Selenourea	1
P104	Silver cyanide	1
P105	Sodium azide	1
P106	Sodium cyanide	1

Annual generation rates given are for wastes that are stored in both tanks and containers.
Annual quantities of wastes stored in containers alone are not available.

Date: 06/08/84
Revision No.: 1

Table D-2. (Continued)

EPA Waste No.	Description	Annual Generation Rate (lb/yr)
P107	Strontium sulfide	1
P108	Strychnine and salts	1
P109	Tetraethyldithiopyrophosphate	1
P110	Tetraethyl lead	1
P111	Tetraethylpyrophosphate	1
P112	Tetranitromethane	1
P113	Thallic oxide	1
P114	Thallium selenite	1
P115	Thallium sulfate	1
P116	Thiosemicarbazide	1
P118	Trichloromethanethiol	1
P119	Vanadic acid, ammonium salt	1
P120	Vanadium pentoxide	1
P121	Zinc cyanide	1
P122	Zinc phosphide	1
P123	Toxaphene	1
U001	Acetaldehyde ✓	1,300
U002	Acetone ✓	45,000*
U003	Acetonitrile ✓	37,000*
U004	Acetophenone	1
U005	2-Acetylaminofluorine	1
U006	Acetyl chloride	1
U007	Acrylamide	1
U008	Acrylic acid	1
U009	Acrylonitrile	1
U010	Azirinol	1
U011	Amitrole	1
U012	Aniline ✓	8,000*
U014	Auramine	1
U015	Azaserine	1
U016	3,4-Benzacridine	1
U017	Benzal chloride	1
U018	Benz(a)anthracene	1
U019	Benzene ✓	30,000*
U020	Benzenesulfonyl chloride	1
U021	Benzidine	1
U022	Benzo(a)pyrene	1
U023	Benzotrichloride	1
U024	Bis(2-chloroethoxy)methane	1

*Annual generation rates given are for wastes that are stored in both tanks and containers.
Annual quantities of wastes stored in containers alone are not available.

Date: 06/08/84
Revision No.: 1

Table D-2. (Continued)

EPA Waste No.	Description	Annual Generation Rate* (lb/yr)
U025	Ethane, 1,1-oxybis(2-chloro-)	1
U026	Chlornaphazine	1
U027	Bis(2-chloroisopropyl)ether	1
U028	Bis(2-ethylhexy)phthalate	1
U029	Bromomethane	1
U030	4-Bromophenyl phenyl ether	1
U031	n-Butanol ✓	1,500*
U032	Chromic acid, calcium salt	1
U033	Carbonyl fluoride	1
U034	Chloral	1
U035	Chlorambucil	1
U036	Chlordane	1
U037	Chlorobenzene ✓	35,000*
U038	Chlorobenzilate	1
U039	4-Chloro-m-cresol	1
U041	1-Chloro-2,3-epoxypropane	1
U042	2-Chloroethyl vinyl ether	1
U043	Chloroethene	1
U044	Chloroform ✓	2,700*
U045	Chloromethane	1
U046	Chloromethoxymethane	1
U047	b-Chloronaphthelene	1
U048	o-Chlorophenol ✓	1,100
U049	4-Chloro-o-toluidine, hydrochloride	1
U050	Chrysene	1
U051	Creosote	1
U052	Cresylic acid	1
U053	Crotonaldehyde	1
U055	Cumene	1
U056	Cyclohexane ✓	1,300*
U057	Cyclohexanone	1
U058	Cyclophosphamide	1
U059	Daunomycin	1
U060	DDD	1
U061	DDT	1
U062	Diallate	1
U063	Dibenz(a,h)anthracene	1
U064	Dibenz(a,i)pyrene	1
U066	1,2-Dibromo-3-chloropropane	1
U067	1,2-Dibromoethane	1

Annual generation rates given are for wastes that are stored in both tanks and containers.
Annual quantities of wastes stored in containers alone are not available.

Date: 06/08/84
Revision No.: 1

Table D-2. (Continued)

EPA Waste No.	Description	Annual Generation Rate* (lb/yr)
U068	Methylene bromide	1
U069	Dibutyl phtalate	1
U070	o-Dichlorobenzene ✓	30,000*
U071	m-Dichlorobenzene	1
U072	p-Dichlorobenzene	1
U073	3,3-Dichlorobenzidine	1
U074	1,4-Dichloro-2-butene	1
U075	Dichlorodifluoromethane	1
U076	Ethylidene dichloride	1
U077	Ethylene dichloride	1
U078	1,1-Dichloroethylene	1
U079	1,2-Dichloroethylene	1
U080	Dichloromethane	1
U081	2,4-Dichlorophenol	1
U082	2,6-Dichlorophenol	1
U083	1,2-Dichloropropane	1
U084	1,3-Dichloropropane	1
U085	1,2:3,4-Diepoxybutane	1
U086	n,n-Diethylhydrazine	1
U087	o,o-Diethyl-s-methyl-dithiophosphate	1
U088	Diethylphthalate	1
U089	Diethylstilbestrol	1
U090	Dihydrosafrole	1
U091	3,3'-Dimethoxybenzidine	1
U092	Dimethylamine	1
U093	Dimethylaminoazobenzene	1
U094	7,12-Dimethylbenz(a)anthracene	1
U095	3,3'-Dimethylbenzidine	1
U096	a,a-Dimethylbenzylhydroperoxide	1
U097	Dimethylcarbamoyl chloride	1
U098	1,1-Dimethylhydrazine	1
U099	1,2-Dimethylhydrazine	1
U101	2,4-Dimethylphenol	1
U102	Dimethyl phthalate	1
U103	Dimethyl sulfate ✓	2,200
U105	2,4-Dinitrotoluene	1
U106	2,6-Dinitrotoluene	1
U107	Di-n-octyl phthalate	1
U108	1,4-Dioxane	1
U109	1,2-Diphenylhydrazine	1

Annual generation rates given are for wastes that are stored in both tanks and containers.
Annual quantities of wastes stored in containers alone are not available.

Date: 06/08/84
Revision No.: 1

Table D-2. (Continued)

EPA Waste No.	Description	Annual Generation Rate* (lb/yr)
U110	Dipropylamine	1
U111	Di-n-propylnitrosamine	1
U112	Ethyl acetate ✓	1,500*
U113	Ethyl acrylate	1
U114	Ethylenebis(dithiocarbamic acid)	1
U115	Ethylene oxide	1
U116	Ethylene thiourea	1
U117	Ethyl ether ✓	1,300*
U118	Ethylmethacrylate	1
U119	Ethyl methanesulfonate	1
U120	Fluoranthene	1
U121	Trichloromono fluoromethane	1
U122	Formaldehyde ✓	1,800*
U123	Formic acid	1
U124	Furan ✓	10
U125	2-Furancarboxaldehyde	1
U126	Glycidylaldehyde	1
U127	Hexachlorobenzene	1
U128	Hexachlorobutadiene	1
U129	Lindane	1
U130	Hexachlorocyclopentadiene	1
U131	Hexachloroethane	1
U132	Hexachlorophene	1
U133	Hydrazine	1
U134	Hydrofluoric acid	1
U135	Hydrogen sulfide ✓	12
U136	Cacodylic acid	1
U137	Indeno(1,2,3-cd)pyrene.	1
U138	Iodomethane	1
U139	Iron dextran	1
U140	Isobutyl alcohol	1
U141	Isoafrole	1
U142	Kepone	1
U143	Lasiocarpine	1
U144	Lead acetate	1
U145	Lead phosphate	1
U146	Lead subacetate	1
U147	Maleic anhydride ✓	200
U148	Maleic hydrazine	1
U149	Malononitrile ✓	1,800
U150	Melphalan	1

*Annual generation rates given are for wastes that are stored in both tanks and containers.
Annual quantities of wastes stored in containers alone are not available.

Table D-2. (Continued)

EPA Waste No.	Description	Annual Generation Rate* (lb/yr)
U151	Mercury	1
U152	Methacrylonitrile	1
U153	Methanethiol	1
U154	Methanol ✓	46,000*
U155	Methapyrilene	1
U156	Methyl chlorocarbonate	1
U157	3-Methylcholanthrene	1
U158	4,4'-Methylenebis(2-chloroaniline)	1
U159	Methyl ethyl keytone ✓	1,500*
U160	Methyl ethyl keytone peroxide	1
U161	Methyl isobutyl keytone	1
U162	Methyl methacrylate	1
U163	n-Methyl-n-nitro-n-nitrosoguanidine	1
U164	Methylthiouracil	1
U165	Naphthalene	1
U166	1,4-Naphthalenedione	1
U167	1-Naphthylamine	1
U168	2-Naphthylamine	1
U169	Nitrobenzene	1
U170	p-Nitrophenol	1
U171	2-nitropropane	1
U172	n-Nitrosodi-n-butylamine	1
U173	n-Nitrosodiethanolamine	1
U174	n-Nitrosodiethylamine	1
U176	n-Nitroso-n-ethylurea	1
U177	n-Nitroso-n-methylurea	1
U178	n-Nitroso-n-methylurethane	1
U179	n-Nitrosopipendine	1
U180	n-Nitrosopyrrolidine	1
U181	s-Nitro-o-Lolridine	1
U182	Paraldehyde	1
U183	Pentachlorobenzene	1
U184	Pentachloroethane	1
U185	Pentachloronitrobenzene	1
U186	1,3-Pentadiene	1
U187	Phenacetin	1
U188	Phenol	1

*Annual generation rates given are for wastes that are stored in both tanks and containers.
Annual quantities of wastes stored in containers alone are not available.

Date: 06/08/84
Revision No.: 1

EPA Waste No.	Description	Annual Generation Rate (lb/yr)
U189	Phosphorus sulfide	1
U190	Phthalic anhydride ✓	200
U191	2-Picoline	1
U192	Pronamide	1
U193	1,2-Oxathiolane, 2,2-dioxide	1
U194	1-Propanamine	1
U196	Pyridine ✓	1,600
U197	p-Benzoquinone	1
U200	Reserpine	1
U201	Resorcinol	1
U202	Saccharin and salts	1
U203	Safrole	1
U204	Selenious acid	1
U205	Selenium disulfide	1
U206	Streptozotocin	1
U207	1,2,4,5-Tetrachlorobenzene	1
U208	1,1,1,2-Tetrachloroethane ✓	2,800*
U209	1,1,2,2-Tetrachloroethane	1
U210	Tetrachloroethylene	1
U211	Carbon tetrachloride	1
U212	2,3,4,6-Tetrachlorophenol	1
U213	Tetrahydrofuran(I) ✓	2,000*
U214	Thallium (I) acetate	1
U215	Thallium (I) carbonate	1
U216	Thallium (I) chloride	1
U217	Thallium (I) nitrate	1
U218	Thioacetamide	1
U219	Thiourea	1
U220	Toluene ✓	47,000*
U221	Toluenediamine	1
U222	o-Toluidine hydrochloride	1
U223	Toluene diisocyanate	1
U225	Tribromomethane	1
U226	1,1,1-Trichloroethane	1
U227	1,1,2-Trichloroethane	1
U228	Trichloroethene	1
U230	2,4,5-Trichlorophenol	1
U231	2,4,6-Trichlorophenol	1
U232	2,4,5-Trichlorophenoxyacetic acid	1
U233	2,4,5-Trichlorophenoxypropionic acid alpha	1
U234	sym-Trinitrobenzene	1
U235	Tris(2,3-dibromopropyl) phosphate	1

Annual generation rates given are for wastes that are stored in both tanks and containers.
Annual quantities of wastes stored in containers alone are not available.

Table D-2. (Continued)

EPA Waste No.	Description	Annual Generation Rate (lb/yr)
U236	Trypan blue1	1
U237	5[Bis(2-chloromethyl)amino]-uracill	1
U238	Carbamic acid, ethyl ester	1
U239	Xylene 29,000*	1
U240	2,4-Dichlorophenoxyacetic acid salts and esters	1
U242	Pentachlorophenol	1
U243	Hexachloropropene	1
U244	Thiuraml	1
U246	Cyanogen bromide	1
U247	Methoxychlor	1
D001	Low boiler residues taken as benzene ✓	500,000*
D002	Magnesium sulfate, magnesium hydroxide and acids ✓	9,600
D003	Spent Raney nickel catalyst plus sulfur cake from dichlorothiazide ✓	5,200
X721	Waste automotive crankcase and lubricating oils from automotive service and gasoline stations, truck terminals and garages ✓	10,000
X722	Waste oil and bottom sludge generated from tank cleanouts from residential/commercial fuel oil tanks	10,000
X723	Waste oils and bottom sludge generated by gasoline stations when gasoline and oil tanks are tested, cleaned, or replaced	10,000
X724	Waste Petroleum Oil generated when tank trucks are cleaned	10,000
X725	Oil spill cleanup residue which: A) is contaminated beyond saturation; or, B) the generator fails to demonstrate that the spilled material was not one of the listed hazardous waste oils	10,000
X726	The following used and unused waste oils: metal working oils; metal working oils; turbine lubricating oils; diesel lubricating oils; and quenching oils	10,000
X727	Waste oils from the draining, cleaning or disposal of electric transformers	10,000
X728	Bottom sludge generated from the processing, blending, and treatment of waste oil in waste oil processing facilities	10,000

*Annual generation rates given are for wastes that are stored in both tanks and containers. Annual quantities of wastes stored in containers alone are not available.

D84-T-D-1-1 through T-D-1-10 (FINAL)



MERCK CHEMICAL MANUFACTURING COMPANY
MERCK & CO., INC.
P.O. BOX 2000 RAHWAY, NEW JERSEY 07065
(201) 574-4000

5/31

May 24, 1985

Mr. Richard M. Walka
Acting Chief
Solid Waste Branch
26 Federal Plaza
Room 905
New York, NY 10278

Dear Mr. Walka:

Attached is a completed questionnaire regarding the Section 3004 (U) of the RCRA amendments for the Merck & Company Rahway site. Areas of the questionnaire which are applicable to present and past activities are:

1. Landfills
2. Waste piles
3. Incinerators
4. Storage tanks (aboveground)
5. Storage tanks (below ground)
6. Container storage areas
7. Wastewater treatment units
8. Waste recycling operations

Information for each area has been provided on a separate sheet. In some cases, further information will be sent at a later date due to availability of past records.

Should you have any questions, please call me at (201) 574-5361.

Sincerely,

Thomas Puchalski

Thomas Puchalski
Environmental Control Manager

/ls
Attachment
CERTIFIED

cc: Mr. Frank Coolick
Bureau of Hazardous Waste
N.J. Dept. of Environmental Protection
Trenton, NJ 08625

ATTACHMENT B-1

SPECIFIC INFORMATION

1. Are there any of the following solid waste management units existing or closed at your facility? Include any units you are aware of that were used by previous owners. Do not include hazardous waste units currently shown in your B application.

	<u>Yes</u>	<u>No</u>
• Landfill	---	---
• Surface Impoundment	---	---
• Dump-pit or Leach Field	---	---
• Land Farm	---	---
• Waste Pile	---	---
• Incinerator	X	---
• Storage Tank (above ground)	---	---
• Storage Tank (below ground)	---	---
• Container Storage Area	---	---
• Injection Wells, Sink Holes	---	---
• Wastewater Treatment Units	---	---
• Transfer Stations	---	---
• Waste Recycling Operations	---	---
• Other (specify)	---	---

(For items 2-4, if the space provided is not sufficient, use additional sheets as necessary and specify the item being answered.)

- 2.) If there are "Yes" answers to any of the items in number one above, please provide the following:

- A. A description of the wastes that were stored, treated or disposed of in each unit.

Temporary storage of plant generated construction debris.

- B. Determine, as best you can, if the particular waste would be considered a hazardous waste or hazardous waste constituent under RCRA (See definitions on page one)

There is no evidence that material in this storage area would be a hazardous waste or a hazardous waste constituent.

- C. A description of each unit including its capacity, dimensions, period of operation, location at facility including a site plan if available.

Since this area was used for temporary storage of construction, debris dimensions are not possible. Its general location is shown on the facility drawing. Period of operation in this area is from 1980 to present.

- 3.) For each unit noted in number one and also those hazardous waste units identified in your Part B application, please provide the following information on any prior or current release of hazardous waste or hazardous waste constituents.

source of information that has led to the possibility that a release has occurred (i.e. discoloration of surrounding soil)

date(s) of release

groundwater monitoring data for units not identified in your Part B

type of waste/material released

quantity or volume of waste/material released

nature of release (i.e., spill, overflow, ruptured tank or pipeline, leachate from landfill or surface impoundment, etc.)

There is no evidence that a release has occurred.

SPECIFIC INFORMATION

1. Are there any of the following solid waste management units existing or closed at your facility? Include any units you are aware of that were used by previous owners. Do not include hazardous waste units currently shown in your B application.

	<u>Yes</u>	<u>No</u>
• Landfill	X	___
• Surface Impoundment	___	___
• Dump-pit or Leach Field	___	___
• Land Farm	___	___
• Waste Pile	___	___
• Incinerator	___	___
• Storage Tank (above ground)	___	___
• Storage Tank (below ground)	___	___
• Container Storage Area	___	___
• Injection Wells, Sink Holes	___	___
• Wastewater Treatment Units	___	___
• Transfer Stations	___	___
• Waste Recycling Operations	___	___
• Other (specify)	___	___

(For items 2-4, if the space provided is not sufficient, use additional sheets as necessary and specify the item being answered.)

- 2.) If there are "Yes" answers to any of the items in number one above, please provide the following:

- A. A description of the wastes that were stored, treated or disposed of in each unit.

1) Building 53 landfill - ashes, empty containers, industrial
debris.

2) Landfill (North Plant) - Miscellaneous pharmaceutical
products and waste cakes.

- B. Determine, as best you can, if the particular waste would be considered a hazardous waste or hazardous waste constituent under RCRA (See definitions on page one)

It is not known whether wastes in either landfill would be
a hazardous waste or hazardous waste constituent.

C. A description of each unit including its capacity, dimensions, period of operation, location at facility including a site plan if available.

<u>ITEM</u>	<u>DIMENSIONS</u>	<u>PERIOD OF OPERATION</u>	<u>LOCATION</u>
Building 53 Landfill	Not Known	Unknown - Removed 1960	See Facility drawing
Landfill (North Plant)	Not Known	Unknown - Last used early 1960	See Facility drawing

3.) For each unit noted in number one and also those hazardous waste units identified in your Part B application, please provide the following information on any prior or current release of hazardous waste or hazardous waste constituents.

source of information that has led to the possibility that a release has occurred (i.e. discoloration of surrounding soil)

date(s) of release

groundwater monitoring data for units not identified in your Part B

type of waste/material released

quantity or volume of waste/material released

nature of release (i.e., spill, overflow, ruptured tank or pipeline, leachate from landfill or surface impoundment, etc.)

There is no evidence that a release has occurred.

SPECIFIC INFORMATION

1. Are there any of the following solid waste management units existing or closed at your facility? Include any units you are aware of that were used by previous owners. Do not include hazardous waste units currently shown in your B application.

	<u>Yes</u>	<u>No</u>
• Landfill	---	---
• Surface Impoundment	---	---
• Dump-pit or Leach Field	---	---
• Land Farm	---	---
• Waste Pile	---	---
• Incinerator	X	---
• Storage Tank (above ground)	---	---
• Storage Tank (below ground)	---	---
• Container Storage Area	---	---
• Injection Wells, Sink Holes	---	---
• Wastewater Treatment Units	---	---
• Transfer Stations	---	---
• Waste Recycling Operations	---	---
• Other (specify)	---	---

(For items 2-4, if the space provided is not sufficient, use additional sheets as necessary and specify the item being answered.)

- 2.) If there are "Yes" answers to any of the items in number one above, please provide the following:

- A. A description of the wastes that were stored, treated or disposed of in each unit.

2 Pathological units - Pathological wastes

Trash unit - Pathological wastes, paper trash, non-hazardous

pharmaceutical wastes and ignitable solvents. This

unit was declassified as a hazardous waste unit in

accordance with an approved closure plan.

- B. Determine, as best you can, if the particular waste would be considered a hazardous waste or hazardous waste constituent under RCRA (See definitions on page one)

Ignitable solvents (F003)

ATTACHMENT B-6

- C. A description of each unit including its capacity, dimensions, period of operation, location at facility including a site plan if available.

2 Pathological units - See facility drawing for location

Trash unit (Building 56) - See facility drawing for location

Note: Dimensions and period of operation will be provided at a later date.

- 3.) For each unit noted in number one and also those hazardous waste units identified in your Part B application, please provide the following information on any prior or current release of hazardous waste or hazardous waste constituents.

source of information that has led to the possibility that a release has occurred (i.e. discoloration of surrounding soil)
date(s) of release

groundwater monitoring data for units not identified in your Part B

type of waste/material released

quantity or volume of waste/material released

nature of release (i.e., spill, overflow, ruptured tank or pipeline, leachate from landfill or surface impoundment, etc.)

There is no evidence that a release has occurred.

ATTACHMENT B-7

SPECIFIC INFORMATION

1. Are there any of the following solid waste management units existing or closed at your facility? Include any units you are aware of that were used by previous owners. Do not include hazardous waste units currently shown in your B application.

	<u>Yes</u>	<u>No</u>
• Landfill	_____	_____
• Surface Impoundment	_____	_____
• Dump-pit or Leach Field	_____	_____
• Land Farm	_____	_____
• Waste Pile	_____	_____
• Incinerator	_____	_____
• Storage Tank (above ground)	_____	_____
• Storage Tank (below ground)	<u>X</u> _____	_____
• Container Storage Area	_____	_____
• Injection Wells, Sink Holes	_____	_____
• Wastewater Treatment Units	_____	_____
• Transfer Stations	_____	_____
• Waste Recycling Operations	_____	_____
• Other (specify)	_____	_____

(For items 2-4, if the space provided is not sufficient, use additional sheets as necessary and specify the item being answered.)

- 2.) If there are "Yes" answers to any of the items in number one above, please provide the following:

- A. A description of the wastes that were stored, treated or disposed of in each unit.

Ignitable solvents were stored in various tanks on site.

- B. Determine, as best you can, if the particular waste would be considered a hazardous waste or hazardous waste constituent under RCRA (See definitions on page one)

D001, F003, F005

ATTACHMENT B-8

- C. A description of each unit including its capacity, dimensions, period of operation, location at facility including a site plan if available.

Incinerator solvent tank - See facility drawing for location.

Vitamin C tank - See facility drawing for location

Note: Capacity, dimensions, and period of operation will
be provided at a later date.

- 3.) For each unit noted in number one and also those hazardous waste units identified in your Part B application, please provide the following information on any prior or current release of hazardous waste or hazardous waste constituents.

source of information that has led to the possibility that a
release has occurred (i.e. discoloration of surrounding soil)
date(s) of release

groundwater monitoring data for units not identified in your
Part B

type of waste/material released

quantity or volume of waste/material released

nature of release (i.e., spill, overflow, ruptured tank or pipeline, leachate from landfill or surface impoundment, etc.)

There is no evidence that a release has occurred.

ATTACHMENT B-9

SPECIFIC INFORMATION

1. Are there any of the following solid waste management units existing or closed at your facility? Include any units you are aware of that were used by previous owners. Do not include hazardous waste units currently shown in your B application.

	<u>Yes</u>	<u>No</u>
• Landfill	_____	_____
• Surface Impoundment	_____	_____
• Dump-pit or Leach Field	_____	_____
• Land Farm	_____	_____
• Waste Pile	_____	_____
• Incinerator	_____	_____
• Storage Tank (above ground)	_____	_____
• Storage Tank (below ground)	_____	_____
• Container Storage Area	<u>X</u>	_____
• Injection Wells, Sink Holes	_____	_____
• Wastewater Treatment Units	_____	_____
• Transfer Stations	_____	_____
• Waste Recycling Operations	_____	_____
• Other (specify)	_____	_____

(For items 2-4, if the space provided is not sufficient, use additional sheets as necessary and specify the item being answered.)

- 2.) If there are "Yes" answers to any of the items in number one above, please provide the following:

- A. A description of the wastes that were stored, treated or disposed of in each unit.

Chlorinated and non-chlorinated solvent stored for offsite disposal or internal recovery.

- B. Determine, as best you can, if the particular waste would be considered a hazardous waste or hazardous waste constituent under RCRA (See definitions on page one)

D001 - F002 - F003 - F005

ATTACHMENT B-10

C. A description of each unit including its capacity, dimensions, period of operation, location at facility including a site plan if available.

1) Tanks 852, 853 - See facility drawing (Tank area #4)

2) 73 Tank farm - See facility drawing (9T)

3) TA-10M - See facility drawing (10T)

4) TA-103, 104 - See Facility drawing (Solvent tank)

5) 69 Tank farm - See facility drawing

Note: Capacity, dimensions, and period of operation will be provided at a later date.

3.) For each unit noted in number one and also those hazardous waste units identified in your Part B application, please provide the following information on any prior or current release of hazardous waste or hazardous waste constituents.

source of information that has led to the possibility that a release has occurred (i.e. discoloration of surrounding soil)
date(s) of release

groundwater monitoring data for units not identified in your Part B

type of waste/material released

quantity or volume of waste/material released

nature of release (i.e., spill, overflow, ruptured tank or pipeline, leachate from landfill or surface impoundment, etc.)

Building 69 tank farm did not pass hydrostatic test. During

demolition soil in area was disposed offsite. Remaining tankage

shows no evidence that a release occurred.

SPECIFIC INFORMATION

1. Are there any of the following solid waste management units existing or closed at your facility? Include any units you are aware of that were used by previous owners. Do not include hazardous waste units currently shown in your B application.

	<u>Yes</u>	<u>No</u>
• Landfill	_____	_____
• Surface Impoundment	_____	_____
• Dump-pit or Leach Field	_____	_____
• Land Farm	_____	_____
• Waste Pile	_____	_____
• Incinerator	_____	_____
• Storage Tank (above ground)	_____	_____
• Storage Tank (below ground)	_____	_____
• Container Storage Area	_____	_____
• Injection Wells, Sink Holes	X	_____
• Wastewater Treatment Units	_____	_____
• Transfer Stations	_____	_____
• Waste Recycling Operations	_____	_____
• Other (specify)	_____	_____

(For items 2-4, if the space provided is not sufficient, use additional sheets as necessary and specify the item being answered.)

- 2.) If there are "Yes" answers to any of the items in number one above, please provide the following:

- A. A description of the wastes that were stored, treated or disposed of in each unit.

Various solvents stored for recovery and still bottoms awaiting
offsite disposal.

- B. Determine, as best you can, if the particular waste would be considered a hazardous waste or hazardous waste constituent under RCRA (See definitions on page one)

F002, F003, and F005.

ATTACHMENT B-12

- C. A description of each unit including its capacity, dimensions, period of operation, location at facility including a site plan if available.

Areas closed in accordance with approved closure plan:

21H thru 29H. Active accumulation areas: 4H, 5H, 6H, 8H, 9H,
10H, 12H, 15H, 17H. Past operation: Solvent recovery area.

For locations see facility drawing

Note: Capacity, dimensions, and period of operations will
be forwarded at a later date.

- 3.) For each unit noted in number one and also those hazardous waste units identified in your Part B application, please provide the following information on any prior or current release of hazardous waste or hazardous waste constituents.

source of information that has led to the possibility that a
release has occurred (i.e. discoloration of surrounding soil)

date(s) of release

groundwater monitoring data for units not identified in your
Part B

type of waste/material released

quantity or volume of waste/material released

nature of release (i.e., spill, overflow, ruptured tank or pipe-
line, leachate from landfill or surface impoundment, etc.)

There is no evidence that a release has occurred.

SPECIFIC INFORMATION

1. Are there any of the following solid waste management units existing or closed at your facility? Include any units you are aware of that were used by previous owners. Do not include hazardous waste units currently shown in your B application.

	<u>Yes</u>	<u>No</u>
• Landfill	_____	_____
• Surface Impoundment	_____	_____
• Dump-pit or Leach Field	_____	_____
• Land Farm	_____	_____
• Waste Pile	_____	_____
• Incinerator	_____	_____
• Storage Tank (above ground)	_____	_____
• Storage Tank (below ground)	_____	_____
• Container Storage Area	_____	_____
• Injection Wells, Sink Holes	_____	_____
• Wastewater Treatment Units	_____	_____
• Transfer Stations	_____	_____
• Waste Recycling Operations	<u>X</u>	_____
• Other (specify)	_____	_____

(For items 2-4, if the space provided is not sufficient, use additional sheets as necessary and specify the item being answered.)

- 2.) If there are "Yes" answers to any of the items in number one above, please provide the following:

- A. A description of the wastes that were stored, treated or disposed of in each unit.

Waste solvents recovered for reuse.

- B. Determine, as best you can, if the particular waste would be considered a hazardous waste or hazardous waste constituent under RCRA (See definitions on page one)

D001, F002, F003, F005

- C. A description of each unit including its capacity, dimensions, period of operation, location at facility including a site plan if available.

Solvent recovery - See facility drawing for location. This area was demolished during late 1970's.

Note: Further information on this area will be provided at a later date.

- 3.) For each unit noted in number one and also those hazardous waste units identified in your Part B application, please provide the following information on any prior or current release of hazardous waste or hazardous waste constituents.

source of information that has led to the possibility that a release has occurred (i.e. discoloration of surrounding soil)
date(s) of release
groundwater monitoring data for units not identified in your Part B
type of waste/material released
quantity or volume of waste/material released
nature of release (i.e., spill, overflow, ruptured tank or pipeline, leachate from landfill or surface impoundment, etc.)

There is no evidence that a discharge occurred.

ATTACHMENT B-15

SPECIFIC INFORMATION

1. Are there any of the following solid waste management units existing or closed at your facility? Include any units you are aware of that were used by previous owners. Do not include hazardous waste units currently shown in your B application.

	<u>Yes</u>	<u>No</u>
• Landfill	_____	_____
• Surface Impoundment	_____	_____
• Dump-pit or Leach Field	_____	_____
• Land Farm	_____	_____
• Waste Pile	_____	_____
• Incinerator	_____	_____
• Storage Tank (above ground)	_____	_____
• Storage Tank (below ground)	_____	_____
• Container Storage Area	_____	_____
• Injection Wells, Sink Holes	_____	_____
• Wastewater Treatment Units	<u>X</u>	_____
• Transfer Stations	_____	_____
• Waste Recycling Operations	_____	_____
• Other (specify)	_____	_____

(For items 2-4, if the space provided is not sufficient, use additional sheets as necessary and specify the item being answered.)

- 2.) If there are "Yes" answers to any of the items in number one above, please provide the following:

- A. A description of the wastes that were stored, treated or disposed of in each unit.

Manufacturing/sanitary sewerage discharged to POTW. Sewerage may be corrosive prior to neutralization and may contain low levels of raw materials, chemical intermediates, and solvents used in processing steps.

- B. Determine, as best you can, if the particular waste would be considered a hazardous waste or hazardous waste constituent under RCRA (See definitions on page one)

Effluent may be corrosive (D002) and may contain low levels of raw materials, intermediates, and solvents used in processing steps.

- C. A description of each unit including its capacity, dimensions, period of operation, location at facility including a site plan if available.

<u>UNIT</u>	<u>CAPACITY</u>	<u>PERIOD OF OPERATION</u>	<u>LOCATION</u>
TA-100A	300,000 Gals.	1980 - Present	See facility drawing
TA-110	300,000 Gals.	1970 - 1984	See facility drawing
TA-120	300,000 Gals.	1970 - Present	See facility drawing
TA-130	13,000 Gals.	1970 - Present	See facility drawing
TA-135	13,000 Gals.	1970 - Present	See facility drawing

- 3.) For each unit noted in number one and also those hazardous waste units identified in your Part B application, please provide the following information on any prior or current release of hazardous waste or hazardous waste constituents.

source of information that has led to the possibility that a release has occurred (i.e. discoloration of surrounding soil)
date(s) of release

groundwater monitoring data for units not identified in your Part B

type of waste/material released

quantity or volume of waste/material released

nature of release (i.e., spill, overflow, ruptured tank or pipeline, leachate from landfill or surface impoundment, etc.)

Tank 110 developed a leak from a corroded floor. Leak was observed

7/1/84, and the tank was immediately taken out of service.

- 4.) In regard to the prior releases described in number three above, please provide (for each unit) any analytical data that may be available which would describe the nature and/or extent of environmental contamination that exists as a result of such releases. In addition, any information on the concentration of hazardous waste or hazardous waste constituents present in contaminated soil, groundwater or surface water should be attached. Include any information/data (including groundwater monitoring data) submitted to EPA and the State under any other regulatory programs (i.e. Superfund, In place-toxics, etc.) that concerns prior or continuing releases as described above.

See attached assay sheet.

- 5.) If you do not have any record of a SMU on your site, is there any evidence from soil borings, drilling of groundwater wells, groundwater monitoring results, exploratory pits or any excavations that would indicate the presence of a SMU or that a release of hazardous waste or hazardous waste constituent has occurred (Please describe the type of activity and observations that led to the discovery)?

N/A

LABORATORY ANALYSIS OF
SOIL SAMPLES
STATIONS A, B, C

PREPARED FOR
MERCK CHEMICAL MANUFACTURING DIV.
RAHWAY, N. J.
07065

SAMPLES RECEIVED
ON
JANUARY 22, 1985

PREPARED BY
ATLANTIC ECOLOGY LABS, INC.
LAKEWOOD, N.J. 08701

ATTACHMENT B-19

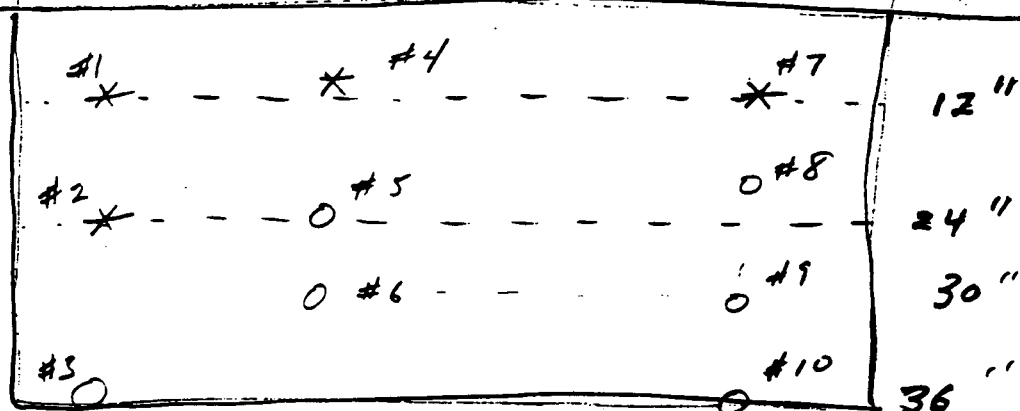
TA-110

WPH

STATION → B

A

C



* pollutants detected

Date: 1/17/85

PARAMETERS	RESULTS (ppm)	SOIL (ppm) DETECTION LIMITS
------------	---------------	--------------------------------

METHOD 8250

Benz(a)anthracene	ND	1.0
Benzo(a)pyrene	ND	1.0
Benzotrichloride	ND	1.0
Benzyl chloride	ND	1.0
Benzo(b)fluoranthene	ND	1.0
Chlordane	ND	1.0
Chlorinated dibenzodioxins	ND	1.0
Chlorinated biphenyls	ND	1.0
2-Chlorophenol	ND	1.0
Chrysene	ND	1.0
Creosote	ND	1.0
Total Cresol(s) -----	8.8 -----	1.0
Total Cresylic Acid(s)	ND	1.0
Total Dichlorobenzene(s)	ND	1.0
Dichlorophenoxyacetic acid	ND	1.0
Dichloropropanol	ND	1.0
2,4-Dimethylphenol	ND	1.0
Dinitrobenzene	ND	1.0
4,6-Dinitro-o-cresol	ND	1.0
2,4-Dinitrotoluene	ND	1.0
Endrin	ND	1.0
Formic acid	ND	1.0
Heptachlor	ND	1.0
Hexachlorobenzene	ND	1.0
Hexachlorobutadiene	ND	1.0
Hexachlorocyclopentadiene	ND	1.0
Lindane	ND	1.0
Maleic anhydride	ND	1.0
Methomyl	ND	1.0

AEL, Inc. Client: Merck & Company Analysis # 08066

Date: 1/17/85

Identification: Sta B, Run #1, Sample #1

PARAMETERS	RESULTS (ppm)	SOIL (ppm) DETECTION LIMIT
------------	---------------	-------------------------------

METHOD 8250 (Continued)

Napthalene	ND	1.0
Napthoquinone	ND	1.0
Nitrobenzene	ND	1.0
Pentachlorophenol	ND	1.0
Phenol -----	47.6 -----	1.0
Phthalic anhydride	ND	1.0
2-Picoline	ND	1.0
Pyridine	ND	1.0
Total Tetrachlorobenzene(s)	ND	1.0
Tetrachlorophenol	ND	1.0
Toluenediamine	ND	1.0
Total Toluene diisocyanate(s)	ND	1.0
Toxaphene	ND	1.0
Total Trichlorophenol(s) -----	20.8 -----	1.0
2,4,5-Trichlorophenoxy propionic acid	ND	1.0

AEL, Inc. Client: Merck & Company Analysis # 0800, Date: 1/17/85
 Identification: Sta B, Run #1&2, Sample 2

PARAMETERS	RESULTS (ppm)	SOIL (ppm) DETECTION LIMITS
<u>METHOD 8250</u>		
Benz(a)anthracene	ND	1.0
Benzo(a)pyrene	ND	1.0
Benzotrichloride	ND	1.0
Benzyl chloride	ND	1.0
Benzo(b)fluoranthene	ND	1.0
Chlordane	ND	1.0
Chlorinated dibenzodioxins	ND	1.0
Chlorinated biphenyls	ND	1.0
2-Chlorophenol	ND	1.0
Chrysene	ND	1.0
Creosote	ND	1.0
Total Cresol(s) -----	2.4 -----	1.0
Total Cresylic Acid(s)	ND	1.0
Total Dichlorobenzene(s)	ND	1.0
Dichlorophenoxyacetic acid	ND	1.0
Dichloropropanol	ND	1.0
2,4-Dimethylphenol	ND	1.0
Dinitrobenzene	ND	1.0
4,6-Dinitro-o-cresol	ND	1.0
2,4-Dinitrotoluene	ND	1.0
Endrin	ND	1.0
Formic acid	ND	1.0
Heptachlor	ND	1.0
Hexachlorobenzene	ND	1.0
Hexachlorobutadiene	ND	1.0
Hexachlorocyclopentadiene	ND	1.0
Lindane	ND	1.0
Maleic anhydride	ND	1.0
Methomyl	ND	1.0

AEL, Inc. Client: Merck & Company Analysis # 08067

Date: 1/17/85

Identification: Sta B, Run #1&2, Sample #2

PARAMETERS	RESULTS (ppm)	SOIL (ppm) DETECTION LIMIT
------------	---------------	-------------------------------

METHOD 8250 (Continued)

Napthalene	ND	1.0
Napthoquinone	ND	1.0
Nitrobenzene	ND	1.0
Pentachlorophenol	ND	1.0
Phenol -----	6.1 -----	1.0
Phthalic anhydride	ND	1.0
2-Picoline	ND	1.0
Pyridine	ND	1.0
Total Tetrachlorobenzene(s)	ND	1.0
Tetrachlorophenol	ND	1.0
Toluenediamine	ND	1.0
Total Toluene diisocyanate(s)	ND	1.0
Toxaphene	ND	1.0
Total Trichlorophenol(s) -----	3.5 -----	1.0
2,4,5-Trichlorophenoxy propionic acid	ND	1.0

AEL, Inc. Client: Merck & Company
Identification: Sta A, Run 1, Sample #4

Analysis # 08069 Date: 1/17/85

PARAMETERS	RESULTS (ppm)	SOIL (ppm) DETECTION LIMITS
<u>METHOD 8240</u>		
Acetonitrile	ND	1.0
Acrolein	ND	1.0
Acrylamide	ND	1.0
Acrylonitrile	ND	1.0
Bis(2-chloroethoxymethane)	ND	1.0
Bis(2-chloroethyl)ether	ND	1.0
Bis(2-chloroisopropyl)ether	ND	1.0
Carbon disulfide	ND	1.0
Carbon tetrachloride	ND	1.0
Chloroacetaldehyde	ND	1.0
Chlorobenzene	ND	1.0
Chloroform	ND	1.0
Chloromethane	ND	1.0
Total Dichloroethane(s)	ND	1.0
Dichloromethane	ND	1.0
Ethyl ether	ND	1.0
Formaldehyde	ND	1.0
Hexachloroethane	ND	1.0
Methanol	ND	1.0
Methyl ethyl ketone	ND	1.0
Methyl isobutyl ketone	ND	1.0
4-Nitrophenol	ND	1.0
Paraidehyde (trimer of acetaldehyde)	ND	1.0
Total Tetrachloroethane(s)	ND	1.0
Tetrachloroethene	ND	1.0
Trichloroethane	ND	1.0
Total Trichloroethene(s)	ND	1.0
Trichlorofluoromethane	ND	1.0
Trichloropropane	ND	1.0
Vinyl chloride	ND	1.0
Vinylidene chloride	ND	1.0
Total xylenes -----	1.06 -----	1.0

AEL, Inc. Client: **Wick & Company** Analysis # **0009** Date: 1/17/85
Identification: Sta A, Run 1, Sample #4

PARAMETERS	RESULTS (ppm)	SOIL (ppm) DETECTION LIMITS
<u>METHOD 8250</u>		
Benz(a)anthracene	ND	1.0
Benzo(a)pyrene	ND	1.0
Benzotrichloride	ND	1.0
Benzyl chloride	ND	1.0
Benzo(b)fluoranthene	ND	1.0
Chlordane	ND	1.0
Chlorinated dibenzodioxins	ND	1.0
Chlorinated biphenyls	ND	1.0
2-Chlorophenol	ND	1.0
Chrysene	ND	1.0
Creosote	ND	1.0
Total Cresol(s) -----	35.2 -----	1.0
Total Cresylic Acid(s)	ND	1.0
Total Dichlorobenzene(s)	ND	1.0
Dichlorophenoxyacetic acid	ND	1.0
Dichloropropanol	ND	1.0
2,4-Dimethylphenol	ND	1.0
Dinitrobenzene	ND	1.0
4,6-Dinitro-o-cresol	ND	1.0
2,4-Dinitrotoluene	ND	1.0
Endrin	ND	1.0
Formic acid	ND	1.0
Heptachlor	ND	1.0
Hexachlorobenzene	ND	1.0
Hexachlorobutadiene	ND	1.0
Hexachlorocyclopentadiene	ND	1.0
Lindane	ND	1.0
Maleic anhydride	ND	1.0
Methomyl	ND	1.0

AEL, Inc. Client: Merck & Company Analysis # 08069

Date: 1/17/85

Identification: Sta A, Run 1, Sample #4

PARAMETERS	RESULTS (ppm)	SOIL (ppm) DETECTION LIMIT
------------	---------------	-------------------------------

METHOD 8250 (Continued)

Napthalene	ND	1.0
Napthoquinone	ND	1.0
Nitrobenzene	ND	1.0
Pentachlorophenol	ND	1.0
Phenol -----	189.6 -----	1.0
Phthalic anhydride	ND	1.0
2-Picoline	ND	1.0
Pyridine	ND	1.0
Total Tetrachlorobenzene(s)	ND	1.0
Tetrachlorophenol	ND	1.0
Toluenediamine	ND	1.0
Total Toluene diisocyanate(s)	ND	1.0
Toxaphene	ND	1.0
Total Trichlorophenol(s) -----	72.7 -----	1.0
2,4,5-Trichlorophenoxy propionic acid	ND	1.0

PARAMETERS	RESULTS (ppm)	SOIL (ppm) DETECTION LIMITS
------------	---------------	--------------------------------

METHOD 8250

Benz(a)anthracene	ND	1.0
Benzo(a)pyrene	ND	1.0
Benzotrichloride	ND	1.0
Benzyl chloride	ND	1.0
Benzo(b)fluoranthene	ND	1.0
Chlordane	ND	1.0
Chlorinated dibenzodioxins	ND	1.0
Chlorinated biphenyls	ND	1.0
2-Chlorophenol	ND	1.0
Chrysene	ND	1.0
Creosote	ND	1.0
Total Cresol(s) -----	25.0 -----	1.0
Total Cresylic Acid(s)	ND	1.0
Total Dichlorobenzene(s)	114.9	1.0
Dichlorophenoxyacetic acid	ND	1.0
Dichloropropanol	ND	1.0
2,4-Dimethylphenol	ND	1.0
Dinitrobenzene	ND	1.0
4,6-Dinitro-o-cresol	ND	1.0
2,4-Dinitrotoluene	ND	1.0
Endrin	ND	1.0
Formic acid	ND	1.0
Heptachlor	ND	1.0
Hexachlorobenzene	ND	1.0
Hexachlorobutadiene	ND	1.0
Hexachlorocyclopentadiene	ND	1.0
Lindane	ND	1.0
Maleic anhydride	ND	1.0
Methomyl	ND	1.0

Identification: Sta C, Run 1, Sample #7

PARAMETERS	RESULTS (ppm)	SOIL (ppm) DETECTION LIMIT
------------	---------------	-------------------------------

METHOD 8250 (Continued)

Napthalene	ND	1.0
Napthoquinone	ND	1.0
Nitrobenzene	ND	1.0
Pentachlorophenol	ND	1.0
Phenol -----	57.7-----	1.0
Phthalic anhydride	ND	1.0
2-Picoline	ND	1.0
Pyridine	ND	1.0
Total Tetrachlorobenzene(s)	ND	1.0
Tetrachlorophenol	ND	1.0
Toluenediamine	ND	1.0
Total Toluene diisocyanate(s)	ND	1.0
Toxaphene	ND	1.0
Total Trichlorophenol(s)	41.1	1.0
2,4,5-Trichlorophenoxy propionic acid	ND	1.0



Merck Chemical Manufacturing Division
Merck & Co., Inc.
P.O. Box 2000, Rahway, New Jersey 07065
(201) 574-4000

prior release 4/17

June 11, 1985

Mr. Richard M. Walka
Acting Chief
Solid Waste Branch
26 Federal Plaza
Room 905
New York, NY 10278

Dear Mr. Walka:

Attached is the final submission which will complete the RCRA 3004 (u) questionnaire for the Rahway site.

Should you have any questions, please call me at (201) 574-5361.

Sincerely,

Thomas Puchalski

Thomas Puchalski
Environmental Control Manager

/ls
Attachment
CERTIFIED

cc: Mr. Frank Coolick
Bureau of Hazardous Waste
N.J. Dept. of Environmental Protection
Trenton, NJ 08625

ATTACHMENT B-30

UNIT: INCINERATION

<u>ITEM</u>	<u>DIMENSIONS/CAPACITY</u>	<u>PERIOD OF OPERATION</u>
Pathological (1)	11' X 7' X 13'	1972 - Present
Pathological (2)	11' X 7' X 13'	1972 - Present
Trash Unit	30 tons/8 hr.	1951 - Present

UNIT: STORAGE TANK (ABOVEGROUND)

<u>TANK</u>	<u>CAPACITY (GALLONS)</u>	<u>PERIOD OF OPERATION</u>
Incineration solvent tank	1,000	1951 - Present
Vitamin C tank	5,000	1937 - 1979

UNIT: STORAGE TANK (BELOW GROUND)

<u>ITEM</u>	<u>CAPACITY (GALLONS)</u>	<u>PERIOD OF OPERATION</u>
852	5,000	1950 - 1984
853	5,000	1950 - 1984
10M	10,000	1950 - 1984
103	5,000	1950 - 1984
104	5,000	1950 - 1984
35*	15,000	1950 - 1984
36*	20,000	1950 - 1985
37*	20,000	1950 - 1985
38*	20,000	1950 - 1985
39*	20,000	1950 - 1985
40*	20,000	1950 - 1984
41*	20,000	1950 - 1984
260*	5,000	1950 - 1984
261*	5,392	1950 - 1984
262*	15,000	1950 - 1984
263*	15,000	1950 - 1984
265*	5,000	1950 - 1985
404*	4,320	1950 - 1984
1**	5,000	1940 - 1977
2**	5,000	1940 - 1977
3**	5,000	1940 - 1977
4**	5,000	1940 - 1977
5**	5,000	1940 - 1977
6**	5,000	1940 - 1977
7**	5,000	1940 - 1977
8**	11,150	1940 - 1977
9**	10,150	1940 - 1977
10**	11,150	1940 - 1977
11**	5,000	1940 - 1977
12**	5,000	1940 - 1977
13**	11,150	1940 - 1977
14**	5,300	1940 - 1977
15**	1,080	1940 - 1977
16**	3,000	1940 - 1977
17**	1,080	1940 - 1977
18**	3,000	1940 - 1977
19**	10,000	1940 - 1977
20**	10,000	1940 - 1977
21**	10,150	1940 - 1977
22**	10,150	1940 - 1977
24**	10,150	1940 - 1977
25**	10,250	1940 - 1977
26**	10,250	1940 - 1977
27**	10,250	1940 - 1977
28**	10,250	1940 - 1977

*73 Tank Farm

**69 Tank Farm

UNIT: STORAGE TANK (BELOW GROUND) (CONTINUED)

<u>ITEM</u>	<u>CAPACITY (GALLONS)</u>	<u>PERIOD OF OPERATION</u>
29**	10,250	1940 - 1977
30**	10,250	1940 - 1977
31**	10,250	1940 - 1977
32**	10,250	1940 - 1977
33**	10,250	1940 - 1977
34**	10,250	1940 - 1977
79**	5,000	1940 - 1977
87**	2,800	1940 - 1977
88**	2,300	1940 - 1977

**69 Tank Farm

UNIT: CONTAINER STORAGE AREA

<u>AREA</u>	<u>DIMENSIONS (FT)</u>	<u>PERIOD OF OPERATIONS</u>
4H	10 X 15	1933 - Present
5H	10 X 10	1946 - Present
6H	75 X 15	1979 - May 84
8H	100 X 10	1941 - Present
9H	100 X 15	1941 - Present
10H	175 X 40	1941 - Present
12H	120 X 10	1977 - Present
15H	200 X 25	1949 - May 84
17H	100 X 25	1949 - May 84
21H	100 X 20	1917 - May 84
22H	100 X 10	1962 - May 84
23H	40 X 10	1935 - May 84
24H	25 X 25	1903 - May 84
25H	75 X 25	1903 - May 84
26H	110 X 10	1979 - May 84
27H	25 X 25	1980 - May 84
28H	150 X 10	1940 - May 84
29H	165 X 10	1940 - May 84
Solvent Recovery Area	60 X 180	1940 - 1977

*very small amt
of waste oil*

*inactive,
scheduled
for demolition*

*mostly
covered with
gravel or
paved*

grass covered

gravel covered

UNIT: WASTE RECYCLING OPERATION

<u>ITEM (COLUMN)</u>	<u>DIMENSIONS</u>	<u>PERIOD OF OPERATION</u>
1	30' X 24"	1940 - 1977
3	20'6" X 36"	1940 - 1977
4A	61' X 24"	1940 - 1977
4B	61' X 24"	1940 - 1977
5	40' X 18"	1940 - 1977
103	61' X 30"	1973 - 1977

ABSTRACT

The Rahway area occupies 67 square miles of the Piedmont Plateau and Coastal Plain physiographic provinces in northeastern New Jersey. Lowlands, from less than 10 feet to 80 feet in altitude, constitute most of the area. A terminal moraine of Wisconsin age forms uplands that range in altitude from 100 to 240 feet. The Rahway River, the principal stream, follows a preglacial drift-filled channel through the city of Rahway, and flows into the Arthur Kill.

The Brunswick Shale of Triassic age which underlies the report area is a massive, fractured shale containing sandstone beds. It is more than 6,000 feet thick. The shale strikes N. 50° E. and dips about 9° to 12° NW. The Raritan Formation of Cretaceous age overlies the Brunswick unconformably in the southeast corner of the area. The Raritan Formation is a series of clays and sands of about 100 feet in thickness in the outcrop area. It strikes about N. 45° E. and dips less than 1° SE.

Wisconsin glacial drift, ranging in thickness from several feet on hilltops to 100 feet in the terminal moraine, blankets the Brunswick Shale and Raritan Formation.

About 6 mgd (million gallons of water per day) is pumped from the Brunswick Shale, which yields water from fracture openings and from pore spaces in the interbedded sandstone. As depth increases, the fractures become smaller and fewer in number and hence yield less water. Recharge to the Brunswick occurs through the hydraulically continuous overlying drift. Interference between wells in the Brunswick is greatest where wells are aligned along the strike of the formation and least where wells are aligned perpendicular to the strike. Both water-table and artesian conditions exist in the Brunswick Shale. Artesian conditions occur generally at depths greater than 100 feet; water-table conditions occur at shallower depths. The average yield of 150 industrial, public-supply, and domestic wells is 75 gpm (gallons per minute). The average specific capacity is 2.2 gpm per foot of drawdown and the average well depth is 218 feet. All industrial and public-supply wells in the Brunswick Shale having a specific capacity of less than one are in the southeastern half of the area.

Ground water from the Brunswick Shale is locally high in sulfate, dissolved solids, and hardness. This is owing to solution of gypsum and calcite in the formation. Concentrations of these constituents increase with depth.

Brackish water is contained in the Brunswick Shale along the tidal reach of the Rahway River and northward along the Arthur Kill. South of the Rahway inlet, the Raritan fire-clay, locally the basal member of the Raritan Formation, overlies the Brunswick Shale and retards seawater inflow from the Arthur Kill.

About 1 mgd is pumped from the Farrington Sand Member of the Raritan Formation in the report area. Twelve industrial wells have an average yield of 96 gpm, an average specific capacity of 9.5 gpm per foot of drawdown, and an average depth of 60 feet. The Farrington Sand Member is hydraulically separated from the Brunswick Shale by the basal Raritan fire-clay. Salt water is encountered in wells in the outcrop area adjacent to the Arthur Kill.

A stratified-drift deposit having an average thickness of 30 feet underlies the city of Rahway. More than a million gallons per day is pumped from four wells tapping both the drift and the underlying Brunswick Shale. The average yield of the wells is 370 gpm, and the average specific capacity is 15.3 gpm per foot.

HYDROLOGY

Water falls to the earth's surface as precipitation. Part is intercepted by vegetation, pavements, and buildings before reaching the ground and is evaporated. Part infiltrates the ground to become soil moisture, capillary water, and ground water. The remainder of the water runs off the land surface to the streams. Evaporation and transpiration take place during these processes, returning to the atmosphere moisture which eventually becomes precipitation again.

OCCURRENCE OF GROUND WATER

Water that percolates to the zone of saturation is ground water. The water table is the upper surface of the zone of saturation and separates that zone from the overlying zone of aeration. The moisture content of the zone of aeration ranges from saturation to a dry state.

Ground water in the Rahway area is stored in and transmitted through pore spaces of unconsolidated sediments such as glacial drift and the Raritan Formation. Joints and other fractures store and transmit the water in the consolidated rocks of Triassic age.

Water-table, or unconfined, ground-water conditions exist when the top of the zone of saturation is at atmospheric pressure. Such conditions occur in the stratified drift in Rahway, in the outcrop area of the Raritan Formation, and at shallow depths in the Brunswick Shale.

Artesian, or confined, conditions occur where ground water is under hydrostatic pressure greater than atmospheric pressure. Pumping from a confined aquifer quickly lowers the artesian pressure and water levels drop rapidly in nearby wells penetrating the same aquifer. Artesian conditions are found in the deeper parts of the Brunswick Shale and in the Raritan Formation beneath the Woodbridge clay. Several artesian wells in the Brunswick Shale flow; these are aligned northeast-southwest along the South Branch of the Rahway River. These wells probably tap a common fracture or fault system which trends northeast-southwest through the area.

MOVEMENT OF GROUND WATER

Ground water moves from points of high ground-water head to points of lower ground-water head. The generalized water-level contour map of the area (fig. 5) shows the altitudes of ground-water levels at the time of well completion. As water-level highs generally coincide with topographic highs, ground water flows generally in the same direction as overland surface flow. Ground-water movement is toward the Rahway River and its branches and through the gravel-filled valley extending from Rahway to the Arthur Kill. Hydraulic gradients range from less than

10 feet per mile, in the Rahway lowland, to more than 80 feet per mile in the southwest half of the area, where the greatest topographic relief occurs.

RECHARGE, DISCHARGE, AND WATER-LEVEL FLUCTUATIONS

Recharge to the zone of saturation occurs primarily from precipitation that infiltrates the soil and percolates to the water table. The amount of precipitation that reaches the water table varies throughout the year and depends on the vegetative cover, soil moisture and permeability, temperature, and the type, duration, and intensity of precipitation.

Ground-water recharge may occur also along streams and lake banks by influent seepage from surface-water bodies after heavy rainfalls. The river or lake level rises faster from direct precipitation and surface runoff than does the water table. The slope of the water table is temporarily reversed and surface water seeps into the aquifer. This water is bank storage and is returned to the stream or lake once the surface-water level falls below the water table.

When the amount of water reaching the zone of saturation exceeds the amount being withdrawn by natural and artificial discharge, the water table rises. As shown in figure 6a, the rise in water levels indicates recharge exceeds discharge from the end of October to the middle of April, during the time when evapotranspiration is lowest.

Discharge of ground water occurs both naturally and artificially. Discharge by natural means includes effluent seepage to perennial streams, lakes, and tidal areas; transpiration by plants whose roots extend to the water table or the overlying capillary fringe; and evaporation where the water table is near the land surface. Ground water is discharged artificially by the pumping or flowing of wells. Discharge from flowing wells in the Rahway area is slight. The amount removed by pumping, however, is significant and is about 8 mgd, of which about 5 or 6 mgd are from the Rahway River watershed area.

The decline in water level in the hydrograph of observation well 26.21.5.4.6 (fig. 6a) shows that discharge exceeds recharge to the water table during the growing season, April through October. The decline in ground-water levels is accompanied by a decrease in stream runoff, April through October (fig. 6b). Stream runoff declines partly because as the water-table gradient decreases, ground water discharge to the streams decreases. Overland flow to streams also decreases during the spring-summer period because most precipitation either evaporates or infiltrates the soil, where it is transpired by plants. It is apparent from figure 6c that evapotranspiration is at its peak and exceeds precipitation

Allowable limits in parts per million. Source of data E. W. Moore. (1940) P. indicates that potable water conforming to U. S. Public Health Service standards is necessary Iron as Fe limit given, applies to both iron alone and the sum of iron and manganese

20 GROUND-WATER RESOURCES OF THE RAHWAY AREA, N. J.

Industry or use	Turbidity	Color	Hardness as CaCO ₃	Iron as Fe	Manganese as Mn	Total Solids	Alkalinity as CaCO ₃	Odor and taste	Hydrogen sulfide	Other requirements
Food processing	15	10		0.5	0.5			Low	1	No corrosiveness, slime formation
Beer	10			.1	.1	500	75	Low	.2	P. NaCl less than 275 ppm (pH 6.5-7.0).
Light beer	10			.1	.1	1,000	150	Low	.2	P. NaCl less than 275 ppm (pH 7.0 or more)
Drinking	10		25-75	.3	.3			Low	1	P.
4 guineas	10			.2	.2			Low	1	P.
Mineral	10			.2	.2			Low	1	P.
Bottled beverages	2	10	250	.3	.3	850	50-100	Low	.2	P. Organic color plus oxygen consumed less than 10 ppm.
Sanitary				.8	.8	100		Low	.2	P. pH above 7.0 for hard candy
Laundry	50		50	.5	.5				1	No corrosiveness, slime formation.
General	10			.2	.2			Low		P.
Undergarments	5	5	50	.2	.2			Low		P. SiO ₂ less than 10 ppm.
Articles, clear, uncolored	2	2		.02	.02	200				No grit, corrosiveness.
Paper and pulp										
Groundwood	50	20	180	1.0	.5		Total 50; hydroxide 8			Al ₂ O ₃ less than 8 ppm. SiO ₂ less than 25 ppm. Cu less than 5 ppm.
Craft pulp	25	15	100	.2	.1	300				pH 7.8 to 8.3.
Wool	15	10	100	.1	.05	200				
High-grade light paper	5	5	50	.1	.05	200				
Yarn (viscose)										
Pulp production	5	5	8	.05	.03	100				Constant composition. Residual alumina less than 0.5 ppm.
Amalgams										
Amalgams	3		55	.0	.0		Total 135; hydroxide 8			
Amalgams	20	10-100	50-135	.2	.2					
Amalgams	5	20		.25	.25					
Amalgams	5	5-20		.25	.25	200				
Amalgams										
Amalgams	5	70		1.0	1.0			Low		
Amalgams		5		.8	.8					

WITHDRAWAL OF WATER

Approximately 8 to 10 mgd of water is withdrawn by industry and public water-supply companies from aquifers in the Rahway area. Most industries obtain water from wells, but those near salt-water contaminated areas or those requiring exceptionally large amounts of water, such as Merck Chemical Co. or Esso Standard Oil Co., purchase water from public water-supply companies.

Three public water-supply companies obtain all or part of their water from within the report area. The Plainfield Division of the Elizabethtown Water Co. owns several wells that tap the Brunswick Shale near Westfield. The Middlesex Water Co. obtains water from wells most of which are located outside of the Rahway area and from surface water from Robinson Branch. The Rahway Water Department obtains its water from the Rahway River and four wells adjacent to the river. Water diversion from the report area by these companies in 1966 was as follows:

	Pumpage from the Rahway area (mgd) in 1966	
	Ground water	Surface Water
Plainfield Division of the Elizabethtown Water Co.	1.83	
Middlesex Water Co.	.04	3.8
Rahway Water Dept.	1.4	3.7

Rahway Water Dept:

water supply is roughly 90% surface water (Rahway River) and 10% well water (wells adjacent to river) per phone conversation with Mike Ravatich of Rahway Water Dept. 10/9/86.

interbedded with till in the terminal moraine. The sand and pebbles are similar in mineralogy to those in the till, but the stratified drift contains very little clay.

The most important water-bearing drift deposit is that underlying the city of Rahway. It is predominantly a sand, containing interbedded gravels and till, that fills a preglacial stream valley. The stratified drift has a maximum thickness of 50 feet near the confluence of the Rahway River and Robinson Branch; the average thickness is about 30 feet. The lithology and general character of this deposit are variable (fig. 10).

In well drained areas, the glacial drift is leached and oxidized to a depth of 2 to 3 feet. The upper 6 to 10 inches is a dark-red-brown soil.

Hydrologic characteristics

The stratified drift filling the buried valley in Rahway is the only important aquifer of Pleistocene age in the report area. The Rahway Water Department withdraws more than a million gallons of water a day from four wells that are screened 15 feet in the stratified drift and penetrate 25 to 50 feet into the underlying Brunswick Shale. The water is obtained from both stratified drift and the Brunswick Shale. The wells are near the Rahway River, and much of their yield is water induced into the aquifers from the river. The average yield of the four 10-inch diameter wells is 370 gpm. The average specific capacity is 15.3 gpm per foot. A 6-inch observation well in the well field which taps only the drift has a yield of 125 gpm, and a specific capacity of 6.2 gpm per foot.

Aquifer-test data are lacking for the stratified drift at Rahway, but some indication of its water-bearing capacity may be inferred from grain-size distribution of eight samples taken from two test wells drilled in Rahway. Laboratory coefficients of permeability for water-yielding materials having size distributions similar to the drift at Rahway are in the order of 1,000 gpd per sq ft or greater (Wenzel, 1942, p. 13). Accordingly, if the drift at Rahway has a saturated thickness of 30 feet, its coefficient of transmissibility is probably about 30,000 gpd per ft or greater. The coefficient of storage is probably between 0.1 to 0.2.

Till is not an important source of ground water in the report area because it has a low permeability, and much of it lies above the zone of saturation. In river valleys, 30 to 40 feet of till may lie below the water table. However, on bedrock hilltops capped with till the water table may be in the underlying Brunswick Shale.

An important function of glacial drift is to absorb, store, and transmit water to the underlying fractured shale wherever they are hydraulically connected. The transmissibility of the stratified drift in Rahway is ap-

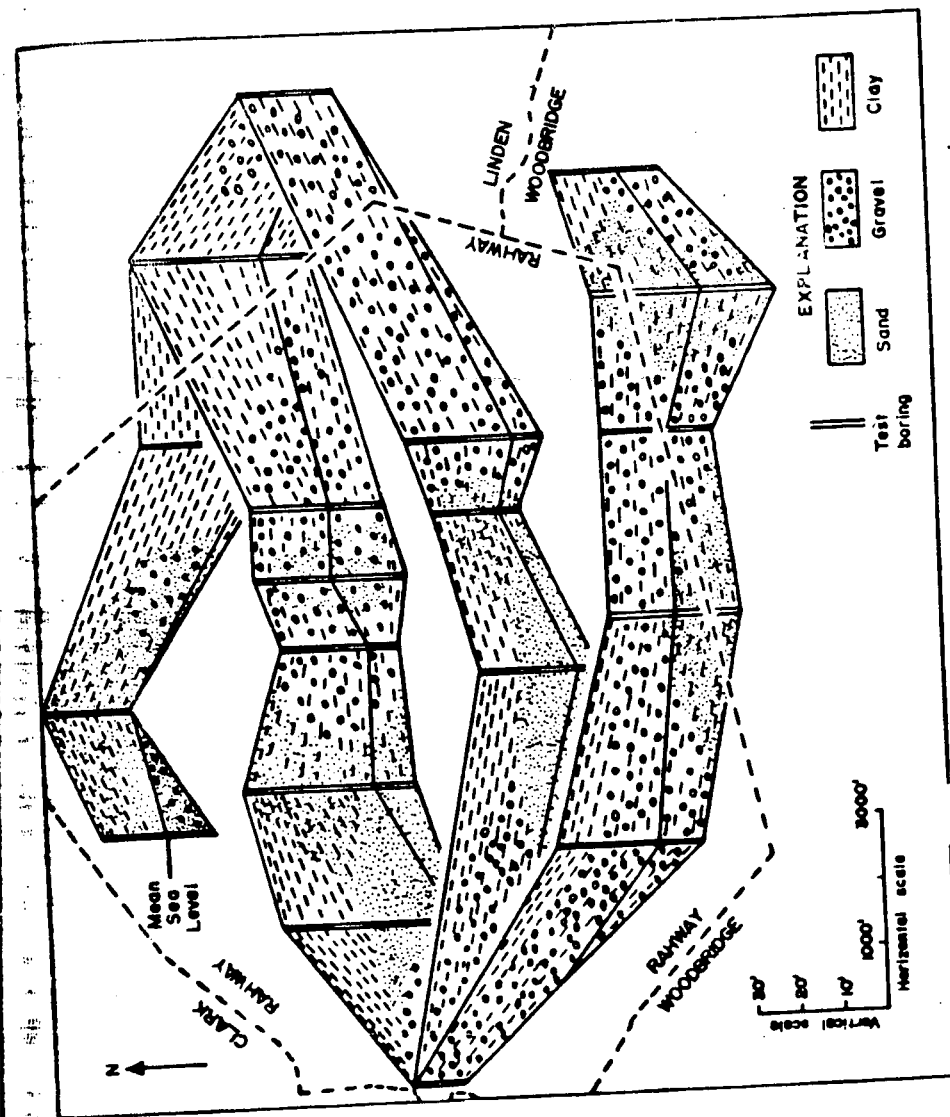


Figure 10. Block diagram of the glacial drift underlying the city of Rahway.

proximately twice that of the underlying shale and can readily transmit water from storage or from induced river recharge to wells in the Brunswick Shale. Usually, where the drift cover is thickest, as in river valleys, the yields of wells in the underlying Brunswick are greatest.

Generally, ground water in the glacial drift is unconfined. However, where stratified drift is overlain by clay lenses, such as in Rahway and the Ash Swamp area, artesian conditions occur.

Quality of water

The quality of water in the drift is generally good, and thus is satisfactory for most uses. Total dissolved solids for 5 samples collected in 1949 range from 200 to 355 ppm and hardness ranges from 110 to 210 ppm.

Salt-water contamination

Salt-water has not intruded the stratified drift beneath the city of Rahway as this deposit is several miles inland from a salt-water source. Salt-water contamination can occur, however, in the drift along the river banks during high tide if withdrawal of ground water from stratified drift and the Brunswick Shale should lower ground-water levels below river level. River water would, then, seep into the ground-water reservoir.

This potential threat of salt-water encroachment would be greatly increased during extended dry periods, or in the autumn after the growing season, when river and ground-water levels are lowest and high tides encroach farthest inland. Such a dry period occurred in 1949, when there was no flow in the Rahway River below the Rahway Water Department intake. Streamflow at the USGS gaging station 2,000 feet downstream was only 0.6 mgd, indicating that there was an average of only 300 gpd contributed by ground-water discharge per foot of stream length.

Recent Series

Recent deposits of alluvium occur in the river channels. Where the stream gradient is sufficiently low, as in tidal reaches, fine-grained matter is flocculated by the sodium in sea water and deposited. Muds high in organic matter have accumulated in the Arthur Kill estuary attaining a thickness of up to 50 feet in Raritan Bay. These deposits are relatively impermeable and protect the coastal aquifers by impeding the intrusion of salt water.

Windblown sand deposits occur in small patches along the Arthur Kill where vegetation is sparse. They are unimportant as a source of ground-water but are highly permeable and transmit water to underlying aquifers.

CONCLUSIONS

If additional large ground-water supplies are developed in the Rahway area, existing supplies would probably be reduced, and intrusion of salt water could result. In the Brunswick Shale, over-development would greatly lower water levels in the southeastern half of the area where water-bearing fractures and sandstone beds are least abundant. Wells aligned parallel to the strike of the Brunswick interfere with one another more than wells aligned normal to the strike. To insure a supply of fresh ground water in the Brunswick Shale, wells should be located where the piezometric surface is 20 feet or more above sea level. Salt water would not be expected at depths of less than about 800 feet in such areas, according to the Ghyben-Herzberg principle. However, the depth to salt water should be verified by test drilling prior to any additional large-scale development.

Further development of ground-water from the Farrington Sand Member of the Raritan Formation is limited by the danger of salt-water intrusion. The piezometric head near the Arthur Kill is less than 10 feet above sea level, and if it is lowered to below sea level by pumping, salt-water contamination will eventually result. Intrusion would follow a path southwestward from Sewaren where the Farrington Sand Member is exposed to the Arthur Kill.

The stratified drift in Rahway is a thin deposit of limited areal extent and consequently has a low storage capacity. Yields of 370 gpm from wells adjacent to the Rahway River are obtained from induced infiltration by the Rahway Water Department. Further development of this deposit would depend on additional induced infiltration of surface water into the aquifer.

The quality of water of the Raritan Formation and the Pleistocene drift is superior to that of the Brunswick Shale as deep wells in the Brunswick near the Rahway River commonly yield water high in sulfate, calcium, and dissolved solids.



PERMIT

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to the further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit.

Permit No. NJ0002348	Issuance Date May 14, 1986	Effective Date July 1, 1986	Expiration Date December 31, 1987
Name and Address of Applicant Merck & Co., Inc. 126 East Lincoln Avenue P.O. Box 2000 Rahway, N.J. 07065	Location of Activity/Facility Merck & Co., Inc. 126 East Lincoln Avenue P.O. Box 2000 Rahway, N.J.	Name and Address of Owner Merck & Co., Inc. 126 East Lincoln Avenue P.O. Box 2000 Rahway, N.J. 07065	
Issuing Division Water Resources	Type of Permit NJPDES/DSW	Statute(s) N.J.S.A. 58:10A-1 et seq.	Application No. NJ0002348

This permit grants permission to:

Discharge cooling water and stormwater to Kings Creek and the Rahway River, classified as SE2 waters, in accordance with effluent limitations, monitoring requirements, and other conditions set forth in Parts I, II, III, and IV hereof.

Approved by the Department of Environmental Protection
 By the Authority of:
 John W. Gaston Jr., P.E.
 Director
 Division of Water Resources

Arnold Schiffman 5-14-86
 DATE
 Arnold Schiffman, Administrator
 Water Quality Management

* The word permit means "approval, certification, registration, etc."

(GENERAL CONDITIONS ARE ON THE REVERSE SIDE.)

ATTACHMENT D-1



STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
CN 402
Trenton, N. J. 08625
PERMIT *



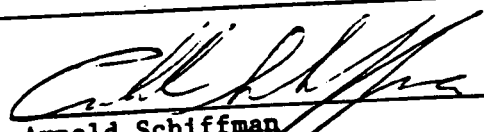
The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to the further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit.

Permit No. NJ0002348	Issuance Date November 2, 1984	Effective Date January 1, 1985	Expiration Date December 31, 1989
Name and Address of Applicant Merck & Co., Inc. 126 East Lincoln Avenue P.O. Box 2000 Rahway, N.J. 07065	Location of Activity/Facility 126 East Lincoln Avenue City of Rahway, N.J.	Name and Address of Owner Same as Applicant	
Issuing Division <input checked="" type="checkbox"/> Water Resources <input type="checkbox"/> Coastal Resources <input type="checkbox"/> Environmental Quality <input type="checkbox"/> Other	Type of Permit NJPDES-SIU	Statute(s) N.J.S.A. 58:10A-1 <u>et seq.</u>	Application No. NJ0002348

This permit grants permission to:

Discharge process wastewater into the Linden Roselle
Sewerage Authority and Rahway Valley Sewerage Authority
Treatment Systems in accordance with the terms and con-
ditions of the permit attached hereto.

Approved by the Department of Environmental Protection


Arnold Schiffman
Administrator
Water Quality Management

11-2-84
DATE

* The word permit means "approval, certification, registration, etc."

(GENERAL CONDITIONS ARE ON THE REVERSE)



State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES

CN 029

TRENTON, NEW JERSEY 08625

WATER QUALITY MANAGEMENT

DIRK C. HOFMAN, P.E.
DEPUTY DIRECTOR

George G. McCann, P.E.
Acting Director

Terese M. Jones
Site Environmental Engineer
Merck & Co., Inc.
P.O. Box 2000
Rahway, NJ 07065-0908

MAY 12 1986

Subject: Draft NJPDES/DSW Permit No. NJ0002348
Merck & Co., Inc. Rahway Site

Dear Ms. Jones:

This letter is in response to your comment letters dated April 26, 1985 and April 4, 1986 concerning the above-cited Draft Permit.

As discussed in our April 22, 1986 meeting, the Final Permit will be issued for a term of 1 1/2 years in order to allow Merck 1 year to collect data concerning the impact of its discharges on the surface water quality of King's Creek and the Rahway River, and to submit a complete renewal application which must include the stormwater discharges from the site which are not currently permitted.

The temperature limitation for DSN's 002 and 003 will be set at an interim maximum of 43.5°C with the provision that Merck undertake a program part of its subsequent permit renewal application to provide the Department with the information needed to determine what water quality based effluent temperature limitations are required to assure compliance with the Surface Water Quality Standards. The program must be in accordance with N.J.A.C. 7:9-4.6 (c). The temperature limitation for DSN 001 will remain at 30°C maximum based on data which indicates compliance with this limit. Since DSN 014 has been discontinued it will be deleted from the Final Permit.

Limitations and monitoring requirements for Oil & Grease and Total Suspended Solids (TSS) at DSN 013 and 015 will be modified. The limitation for Oil & Grease will be lowered from 15 mg/l maximum to 10 mg/l maximum, and monitoring will be required by single rather than multiple grab sampling within 45 minutes after

New Jersey Is An Equal Opportunity Employer

ATTACHMENT D-3

the onset of discharge at each outfall, including those additional outfalls for which permit application data must be obtained. N.J.A.C. 7:14A-14.5 specifies sampling for oil and grease discharges resulting from precipitation events during working hours. Working hours is defined as including and not limited to 8:00 A.M. through 5:00 P.M. Eastern Standard Time, Monday through Friday. The limitation for TSS at DSN 013 and 015 will be set at an interim 100 mg/l maximum with the provision that Merck establish a study program and data base to determine if treatment or alternate limitations to the 50 mg/l maximum limitation specified in the draft permit are appropriate.

Based on Merck's assertion that no copper containing water treatment additives are used, monitoring for copper will be deleted from DSN's 001,002 and 003 as requested.

The U.S.EPA's policy classifies each industrial facility as major or minor. The criteria used to determine classification is based on a point rating system. The following items are considered when rating a facility:

- 1.) Toxic Pollutant Potential
- 2.) Flow/Stream Volume
- 3.) Conventional Pollutant Loading
- 4.) Potential Public Health Impacts
- 5.) Water Quality Factors

It is U.S.EPA's policy to require monthly reporting for all major facilities.

The draft permit will be finalized in accordance with the above discussion. If you have any questions, you can contact me or Flavian Stellerine of my staff at (609) 292-0407.

Sincerely,



Edward H. Post, P.E., Chief
Industrial Permits Section
Bureau of Industrial Waste Management

cc: Final Permit Distribution List

WQM981b

MCMD

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
P.O. BOX 2000 RAHWAY, NEW JERSEY 07065-0400
(201) 574-4000

April 4, 1986

Flavian Stellerine
State of New Jersey
Department of Environmental Protection
Water Quality Management Element
Division of Water Resources
Industrial Waste Management
CNO29
Trenton, NJ 08625

RECEIVED

APR 10 1986

DEPT. ENVIRONMENTAL PROTECTION
NEWARK OFFICE

Dear Mr. Stellerine:

This letter is to summarize our meeting of February 27, 1986. The purpose of which was to review permitting requirements and strategies for stormwater discharges from the Merck & Co., Inc. Rahway facility. As discussed, there are a total of 16 discharges to Kings Creek and 1 discharge to the Rahway River (via the City of Rahway collection system). Attachment I summarizes each of the discharges and their status with respect to permitting requirements.

Two groups of discharges were discussed. The first group are those discharges outlined in the NJPDES/DSW draft permit, No. NJ0002348, and the second group are those discharges which Merck must file a permit application for.

DRAFT NJPDES/DSW PERMIT NO. NJ0002348

Comments submitted by Merck & Co., Inc. in April of 1985 were reviewed with the following points still left unanswered:

1. NJDEP sets a temperature limit of 30°C for all direct discharges. As discussed, Merck & Co., Inc. has shown through thermal monitoring that the impact of DSN001 and DSN002 on the creek is less than 0.11°C. To decrease the temperature of DSN001, DSN002, and DSN003 prior to there discharge would be extremely costly with minimal impact on the creek. Merck & Co., Inc. suggest that with the guidance of the NJDEP it will expand its study of the creek to further prove this point.
2. Oil and grease monitoring requirements for each of the discharges require that "samples shall be taken 15, 30, and 45 minutes after the onset of the discharge." As explained, because of the number of discharges, Merck & Co., Inc. would be unable to meet the sampling requirements. You proposed that we report this as such. Merck & Co., Inc. proposes that a grab sample during discharge should be the monitoring requirement for oil and grease.

ATTACHMENT D-5

48

DRAFT NJPDES/DSW PERMIT NO. NJ0002348 (Continued)

3. Merck & Co., Inc. is unable to meet the limit proposed of 50 mg/liter for total suspended solids. I would like to further discuss if this limit is applicable to the Merck & Co., Inc. discharges.
4. It was agreed that the monitoring for copper would be deleted from the permit.
5. You informed us that monthly reporting was required because the Merck & Co., Inc. Rahway facility is classified as a "major site." Merck & Co., Inc. requests information on why it so classified and what are the other classifications.

EXISTING DISCHARGES NOT LISTED ON THE DRAFT PERMIT

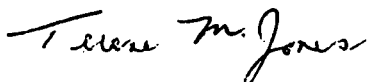
There are ten points at which the Merck & Co., Inc. Rahway Site discharges into Kings Creek which are not listed on the draft permit. As shown on the attached map, many of these are single catch basins of insignificant volume. Merck & Co., Inc. is requesting a second meeting to clarify the following points prior to submission of its applications for the permitting of these discharges:

1. It was stated that it is unnecessary to permit roof drains of roofs which have no manufacturing on them.
2. It is unnecessary to permit those discharges from non-manufacturing areas of insignificant volume.
3. You proposed that a single sampling point as the creek leaves the Merck & Co., Inc. property could be permitted for the site discharge. As discussed, there are high levels of COD, TSS, and oil and grease entering the site from upstream and there are two other discharges which enter the creek from offsite between DSN014 and DSN016; therefore, Merck & Co., Inc. proposed that reporting of variance between upstream and downstream would more accurately describe its impact upon the creek.

Merck & Co., Inc. feels that it is important to clarify all of the above listed discharges and the NJDEP regulations concerning these discharges. We request a meeting with you and Mr. Ed Post, your manager, to assist us on the permitting of these discharges.

Please contact me at (201) 574-7929 to arrange a meeting to answer these questions.

Sincerely,



Terese M. Jones
Site Environmental Engineer

/ls
0142L
Attachment

cc: Bureau of Regional Enforcement
2 Babcock Place
West Orange, NJ 07052

ATTACHMENT I

DISCHARGE DESIGNATION	DESCRIPTION	STATUS
DSN001 DSN002* DSN003*	Combination of non-contact cooling water and surface water runoff.	Draft Permit
DSN013 DSN014 DSN015	Storm water discharges	Draft Permit
DSN016 DSN026 DSN027 DSN029 DSN030 DSN031 DSN032 DSN033 DSN034 DSN036	Storm water discharges	Application Needed

* not shown on map.

State of New Jersey
Department of Environmental Protection
Division of Water Resources
1474 Prospect Street, CN-029
Trenton, New Jersey 08625

FACT SHEET
FOR DRAFT NJPDES PERMIT TO DISCHARGE
INTO THE WATERS OF THE STATE OF NEW JERSEY

Permit No. NJ0002348

Date: MAR 25 1985

Name and Address of Applicant: Merck & Company, Inc.
126 East Lincoln Avenue
Rahway, New Jersey 07065

Name and Address of Facility
where Discharge Occurs: Merck & Company, Inc.
126 East Lincoln Avenue
Rahway, New Jersey 07065

Receiving Water: Kings Creek and Rahway River

Classification: TW-2

I. DESCRIPTION OF FACILITY

The above named applicant has applied for a New Jersey Pollutant Discharge Elimination System (NJPDES) permit, to the State of New Jersey Department of Environmental Protection, Division of Water Resources to discharge into the designated receiving water. A location map of the facility is included on page 3.

The applicant is involved in the manufacture and research and development of pharmaceuticals and agricultural pesticides. The SIC codes for the facility are 2800, 2833, and 2879.

Wastewater generated by pharmaceutical manufacturing (0.3577 MGD), non-contact cooling water (0.2 MGD), boiler blowdown (0.55 MGD), animal health formulations (650 GPD), sanitary wastewater (0.01 MGD), and pesticide formulations is pretreated by equalization and neutralization before discharge to the Linden Roselle Sewerage Authority's treatment system (DSN's 005, 008, 009, 010, and 011).

Wastewater generated by research and pilot plant operations (1.51 MGD), along with sanitary wastewater (0.06 MGD) is discharged without treatment to the Rahway Valley Sewerage Authority treatment system (DSN's 006, 007, and 012).

There are three noncontact cooling water, cooling tower blowdown and stormwater discharge points which are designated DSN's 001, 002, and 003. DSN 001 averages 38,000 gallons per day (gpd), DSN 002 averages 47,000 gpd, and DSN 003 averages 45,000 gpd. In addition, there are three stormwater only discharge points which are designated as DSN's 013, 014, and 015. DSN 013 averages 2,200 gpd, DSN 014 averages 367 gpd, and DSN 015 averages 6,575 gpd. All these discharges flow untreated into either Kings Creek or the Rahway River.

II. DESCRIPTION OF DRAFT PERMIT CONDITIONS

The existing and proposed effluent limitations and other pertinent information regarding the draft permit are described in the Permit Summary Table (page 4). Also included is a brief summary of the basis for each effluent limitation and other conditions in the draft permit (page 10).

III. VARIANCE OR MODIFICATION (if applicable)

N/A

IV. PROCEDURES FOR REACHING A FINAL DECISION ON THE DRAFT PERMIT

These procedures are set forth in N.J.A.C. 7:14A-7.1 et seq.. Included in the public notice are requirements for the submission of comments by a specified date, procedures for requesting a hearing and the nature of the hearing, and other procedures for participation in the final agency decision.

V. NJDEP CONTACT

Additional information concerning the Draft Permit may be obtained between the hours of 8:00 A.M. and 4:30 P.M., Monday through Friday from: Flavian Stellerine, Industrial Permits Section, at (609) 292-0407.

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
1474 PROSPECT STREET
P.O. BOX CN-029
TRENTON, NEW JERSEY 08625

SIU FACT SHEET

FOR DRAFT NJPDES PERMIT TO DISCHARGE INTO:

LINDEN ROSELL SEWERAGE AUTHORITY (LRSA) &
RAHWAY VALLEY SEWERAGE AUTHORITY (RVSA)

MERCK & CO., INC. HAS APPLIED FOR A NEW JERSEY POLLUTANT DISCHARGE ELIMINATION SYSTEM (NJPDES) PERMIT, TO THE DEPARTMENT OF ENVIRONMENTAL PROTECTION TO DISCHARGE INTO THE ABOVE DESIGNATED DOMESTIC TREATMENT WORKS.

DATE APPLICATION RECEIVED: SEPTEMBER 8, 1981

NAME AND ADDRESS OF APPLICANT:

NJPDES NO. NJ0002348

MERCK & CO., INC.
126 EAST LINCOLN AVENUE
P.O. BOX 2000
RAHWAY, N.J. 07065

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

MERCK & CO., INC.
126 EAST LINCOLN AVENUE
CITY OF RAHWAY, UNION COUNTY, NEW JERSEY

RECEIVING COLLECTION SYSTEM (IF DIFFERENT FROM DTW):

N/A

DESCRIPTION OF FACILITY OPERATIONS:

THE APPLICANT MANUFACTURES AND PROCESSES MEDICAL CHEMICALS, SIC CODE 2833 AND AGRICULTUREAL PESTICIDES, SIC CODE 2879. THE APPLICANT ALSO OPERATES RESEARCH FACILITIES AND A PILOT PLANT FOR THESE PRODUCTS.

THE WASTEWATER GENERATED BY PHARMACEUTICAL MANUFACTURING (0.3577 MGD), NON-CONTACT COOLING WATER (0.2 MGD), BOILER BLOWDOWN (0.55 MGD), ANIMAL HEALTH FORMULATIONS (0.00065 MGD), PESTICIDE FORMULATIONS (0.00065 MGD), AND SANITARY WASTEWATER (0.01 MGD) IS PRETREATED BY EQUALIZATION AND NEUTRALIZATION AND THEN DISCHARGED INTO THE LINDEN ROSELLE SEWERAGE AUTHORITY'S TREATMENT SYSTEM.

THE WASTEWATER GENERATED BY THE RESEARCH AND PILOT PLANT OPERATIONS (1.51 MGD), ALONG WITH SANITARY WASTEWATER (0.06 MGD) IS DISCHARGED, WITHOUT ANY PRETREATMENT, INTO THE RAHWAY VALLEY SEWERAGE AUTHORITY'S TREATMENT SYSTEM.

WQM45-H/PTS1:fmm

ATTACHMENT D-12



MCMD

MERCK CHEMICAL MANUFACTURING DIVISION
MERCK & CO., INC.
P.O. BOX 2000, RAHWAY, NEW JERSEY 07065-0904
(201) 574-4000

002348
D-24P9
L-JTNO

April 1988

Mr. Isadore Nathan Cooperman
Supervising Environmental Engineer
Bureau of Permits Administration
Water Quality Management
Department of Environmental Protection
CN 029
Trenton, New Jersey 08625

RECEIVED
MAY 05 1988

RE: NJPDES 0002348

DEPT. ENVIRON. PROTECTION
Division Water Resources
Bureau of Permits Admin.

Dear Mr. Cooperman:

Enclosed is the renewal application for the Merck & Co., Inc. Rahway facility NJPDES/DSW permit. As per our phone conversation earlier this year the application was delayed due to our inability to sample a number of the discharge points in accordance with proper sampling techniques. As we agreed, the enclosed application is being submitted incomplete so that we may work with the Department and gain your assistance in resolving our sampling difficulties.

The application includes ten additional discharge points along with the renewal for five currently permitted discharge points. Please be advised that although the permit expired in January 1988 we have continued all sampling and reporting as if the permit was still active. The enforcement division also inspected the facility in March 1988 from which we recieved an acceptable rating (see enclosed report).

PERMITTING STRATEGY OF STORM WATER POINTS

Our difficulty in sampling a number of the points stems from the fact that the discharges are into catch basins located in non-process, street and gravel areas. We are unable to sample these points in accordance with approved methodology. Firstly, we are unable to sample them as they enter the creek and secondly, the flows are so minute that in order to sample we have to catch the runoff as it enters the catch basin.

In April of 1986 Merck & Co., Inc. proposed to sample Kings Creek as it enters and as it exits the property to accurately determine the net impact of the site discharges on the surface water quality of the state. We would again like to propose this alternative with a few modifications. We propose to sample the creek as it enters the property underground (point A on attached map) and as it surfaces on our property (point B on the attached map). The difference between the two sample results would be equal to the net impact of nine of the discharge points. We would then treat DSN016, DSN013 and DSN015 as separate discharge points and sample them accordingly.

PERMITTING STRATEGY OF NON-CONTACT COOLING WATER DISCHARGES
DSN001, DSN002, AND DSN003

Merck & Co., Inc. proposes that the permit for these points be renewed with the following modifications.

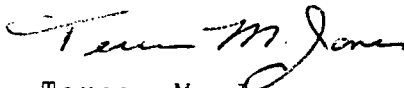
- a) For those parameters which we have shown consistent compliance we are requesting a variance to reduce the frequency to quarterly.
- b) To reduce paperwork and manpower requirements we are requesting a variance to report on a quarterly basis with the condition that we will report any exceptions monthly.
- c) We are requesting a variance from the temperature limit of 30 C. This request is based on the fact that the sampling does not occur as the discharges enter Kings Creek (DSN001 and DSN002) or the Rahway River (DSN003), but actually quite a distance from the surface waters. For example, the discharge to the Rahway River enters the City's collection system, is mixed with runoff from the streets, and enters the river over 0.5 miles away. We would like the opportunity to discuss an alternate limit with the Department.

I would like to inform the Department of recent improvements made to the site which have increased the accuracy of our sampling. In 1986 and 1987 Merck committed and spent in excess of \$300,000 to install sampling stations at DSN001, DSN002, DSN003, DSN013, DSN015, DSN016, and Point B on the map. The project was undertaken because of sampling difficulties at these points and to resolve worker safety issues. The scope of the project included such things as the installation of monitoring platforms, temperature regulated housings for the automatic samplers to prevent freeze ups in the winter, and all new monitoring equipment. These types of installations are inadequate for the monitoring of the other nine points because they are not accessible, the creek is directly under a road.

One other item we are requesting approval for is the testing of fire response water systems as permitted discharges to the Creek. These include the testing of fire hydrants, fire water from emergency drills (required by our disaster control plan and Hazardous Waste permit) and testing of sprinkler systems.

Please contact myself or Ms. J. Jans at 201-574-7929 to set up a meeting date to review the enclosed application. We would welcome the opportunity to host an initial meeting at the Rahway site to include a field tour of each of the discharge points.

Sincerely,

A handwritten signature in cursive script, reading "Terese M. Jones".

Terese M. Jones
Environmental Control
Superintendent

FORM
2C
NPDES

U.S. ENVIRONMENTAL PROTECTION AGENCY
APPLICATION FOR PERMIT TO DISCHARGE WASTEWATER
EXISTING MANUFACTURING, COMMERCIAL, MINING AND SILVICULTURAL OPERATIONS
Consolidated Permits Program

I. OUTFALL LOCATION

For each outfall, list the latitude and longitude of its location to the nearest 15 seconds and the name of the receiving water.

A. OUTFALL NUMBER (list)	B. LATITUDE			C. LONGITUDE			D. RECEIVING WATER (name)
	1. DEG.	2. MIN.	3. SEC.	1. DEG.	2. MIN.	3. SEC.	
001	40°	37'	00"	74°	16'	00"	Kings Creek
002	40°	37'	00"	74°	16'	00"	Kings Creek
003	40°	37'	00"	74°	16'	00"	Kings Creek
013	40°	37'	00"	74°	16'	00"	Kings Creek
015	40°	37'	00"	74°	16'	00"	Kings Creek
016	40°	37'	00"	74°	16'	00"	Kings Creek

II. FLOWS, SOURCES OF POLLUTION, AND TREATMENT TECHNOLOGIES

A. Attach a line drawing showing the water flow through the facility. Indicate sources of intake water, operations contributing wastewater to the effluent, and treatment units labeled to correspond to the more detailed descriptions in Item B. Construct a water balance on the line drawing by showing average flows between intakes, operations, treatment units, and outfalls. If a water balance cannot be determined (e.g., for certain mining activities), provide a pictorial description of the nature and amount of any sources of water and any collection or treatment measures.

B. For each outfall, provide a description of: (1) All operations contributing wastewater to the effluent, including process wastewater, sanitary wastewater, cooling water, and storm water runoff; (2) The average flow contributed by each operation; and (3) The treatment received by the wastewater. Continue on additional sheets if necessary.

1. OUTFALL NO (list)	2. OPERATION(S) CONTRIBUTING FLOW		3. TREATMENT	
	a. OPERATION (list)	b. AVERAGE FLOW (include units)	a. DESCRIPTION	b. LIST CODES FROM TABLE 2C-1
001	Non-contact cooling water and stormwater	25,700 GPD	None	
002	Non-contact cooling water and stormwater	34,200 GPD	None	
003	Non-contact cooling water and stormwater	10,500 GPD	None	
013	Stormwater	27 GPM	None	
015	Stormwater	304 GPM	None	
016	Stormwater	74 GPM	None	

OFFICIAL USE ONLY (effluent guidelines sub-categories)

FORM
2C
NPDES

U.S. ENVIRONMENTAL PROTECTION AGENCY
APPLICATION FOR PERMIT TO DISCHARGE WASTEWATER
EXISTING MANUFACTURING, COMMERCIAL, MINING AND SILVICULTURAL OPERATIONS
Consolidated Permits Program

I. OUTFALL LOCATION

For each outfall, list the latitude and longitude of its location to the nearest 15 seconds and the name of the receiving water.

A. OUTFALL NUMBER (list)	B. LATITUDE			C. LONGITUDE			D. RECEIVING WATER (name)
	1. DEG.	2. MIN.	3. SEC.	1. DEG.	2. MIN.	3. SEC.	
026	40°	37'	00"	74°	16'	00"	Kings Creek
027	40°	37'	00"	74°	16'	00"	Kings Creek
029	40°	37'	00"	74°	16'	00"	Kings Creek
030	40°	37'	00"	74°	16'	00"	Kings Creek
031	40°	37'	00"	74°	16'	00"	Kings Creek
032	40°	37'	00"	74°	16'	00"	Kings Creek

II. FLOWS, SOURCES OF POLLUTION, AND TREATMENT TECHNOLOGIES

A. Attach a line drawing showing the water flow through the facility. Indicate sources of intake water, operations contributing wastewater to the effluent, and treatment units labeled to correspond to the more detailed descriptions in Item B. Construct a water balance on the line drawing by showing average flows between intakes, operations, treatment units, and outfalls. If a water balance cannot be determined (e.g., for certain mining activities), provide a pictorial description of the nature and amount of any sources of water and any collection or treatment measures.

B. For each outfall, provide a description of: (1) All operations contributing wastewater to the effluent, including process wastewater, sanitary wastewater, cooling water, and storm water runoff; (2) The average flow contributed by each operation; and (3) The treatment received by the wastewater. Continue on additional sheets if necessary.

1. OUTFALL NO. (list)	2. OPERATION(S) CONTRIBUTING FLOW		3. TREATMENT	
	a. OPERATION (list)	b. AVERAGE FLOW (include units)	a. DESCRIPTION	b. LIST CODES FROM TABLE 2C-1
026	Stormwater	Unable to measure	None	
027	Stormwater	Unable to measure	None	
029	Stormwater	39 GPM	None	
030	Stormwater	82 GPM	None	
031	Stormwater	52 GPM	None	
032	Stormwater	Unable to measure	None	

OFFICIAL USE ONLY (effluent guidelines sub-categories)

CONTINUE ON REVERSE

C. Except for storm runoff, leaks, or spills, are any of the discharges described in Items II-A or B intermittent or seasonal?
☐ YES (complete the following table) **N/A** ☒ NO (go to Section III)

1. OUTFALL NUMBER (list)	2. OPERATION(s) CONTRIBUTING FLOW (list)	3. FREQUENCY		4. FLOW					
		a. DAYS PER WEEK (specify average)	b. MONTHS PER YEAR (specify average)	a. FLOW RATE (in mgd)		b. TOTAL VOLUME (specify with units)		c. DUR- ATION (in days)	
				1. LONG TERM AVERAGE	2. MAXIMUM DAILY	1. LONG TERM AVERAGE	2. MAXIMUM DAILY		

III. PRODUCTION

A. Does an effluent guideline limitation promulgated by EPA under Section 304 of the Clean Water Act apply to your facility?

☒ YES (complete Item III-B)

☐ NO (to Section IV)

B. Are the limitations in the applicable effluent guideline expressed in terms of production (or other measure of operation)?

☐ YES (complete Item III-C)

☒ NO (go to Section IV)

C. If you answered "yes" to Item III-B, list the quantity which represents an actual measurement of your level of production, expressed in the terms and units used in the applicable effluent guideline, and indicate the affected outfalls.

1. AVERAGE DAILY PRODUCTION			2. AFFECTED OUTFALLS (list outfall numbers)
a. QUANTITY PER DAY	b. UNITS OF MEASURE	c. OPERATION, PRODUCT, MATERIAL, ETC. (specify)	

IV. IMPROVEMENTS

A. Are you now required by any Federal, State or local authority to meet any implementation schedule for the construction, upgrading or operation of wastewater treatment equipment or practices or any other environmental programs which may affect the discharges described in this application? This includes, but is not limited to, permit conditions, administrative or enforcement orders, enforcement compliance schedule letters, stipulations, court orders, and grant or loan conditions.

☐ YES (complete the following table)

☒ NO (go to Item IV-B)

1. IDENTIFICATION OF CONDITION, AGREEMENT, ETC.	2. AFFECTED OUTFALLS		3. BRIEF DESCRIPTION OF PROJECT	4. FINAL COMPLIANCE DATE	
	a. NO.	b. SOURCE OF DISCHARGE		a. RE-REQUIRED	b. PROJECTED

B. OPTIONAL: You may attach additional sheets describing any additional water pollution control programs (or other environmental projects which may affect your discharges) you now have underway or which you plan. Indicate whether each program is now underway or planned, and indicate your actual or planned schedules for construction. ☐ MARK "X" IF DESCRIPTION OF ADDITIONAL CONTROL PROGRAMS IS ATTACHED

CONTINUED FROM PAGE 2

V. INTAKE AND EFFLUENT CHARACTERISTICS

A, B, & C: See instructions before proceeding — Complete one set of tables for each outfall — Annotate the outfall number in the space provided.
 NOTE: Tables V-A, V-B, and V-C are included on separate sheets numbered V-1 through V-9.

D. Use the space below to list any of the pollutants listed in Table 2c-3 of the instructions, which you know or have reason to believe is discharged or may be discharged from any outfall. For every pollutant you list, briefly describe the reasons you believe it to be present and report any analytical data in your possession.

1. POLLUTANT	2. SOURCE	1. POLLUTANT	2. SOURCE
None			

VI. POTENTIAL DISCHARGES NOT COVERED BY ANALYSIS

Is any pollutant listed in Item V-C a substance or a component of a substance which you currently use or manufacture as an intermediate or final product or byproduct?

☐ YES (list all such pollutants below)

☒ NO (go to Item VI-B)

VII. BIOLOGICAL TOXICITY TESTING DATA

Do you have any knowledge or reason to believe that any biological test for acute or chronic toxicity has been made on any of your discharges or on a receiving water in relation to your discharge within the last 3 years?

☐ YES (identify the test(s) and describe their purposes below)

☒ NO (go to Section VIII)

VIII. CONTRACT ANALYSIS INFORMATION

Were any of the analyses reported in Item V performed by a contract laboratory or consulting firm?

☒ YES (list the name, address, and telephone number of, and pollutants analyzed by, each such laboratory or firm below)

☐ NO (go to Section IX)

A. NAME	B. ADDRESS	C. TELEPHONE (area code & no.)	D. POLLUTANTS ANALYZED (list)
International Technology Corporation	165 Fieldcrest Avenue P.O. Box 7809 Edison, NJ 08818-7809	(201) 225-2000	Volatile organics Oil & Grease Carbon Disulfide Antimony, Nickel Zinc

IX. CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

A. NAME & OFFICIAL TITLE (type or print)

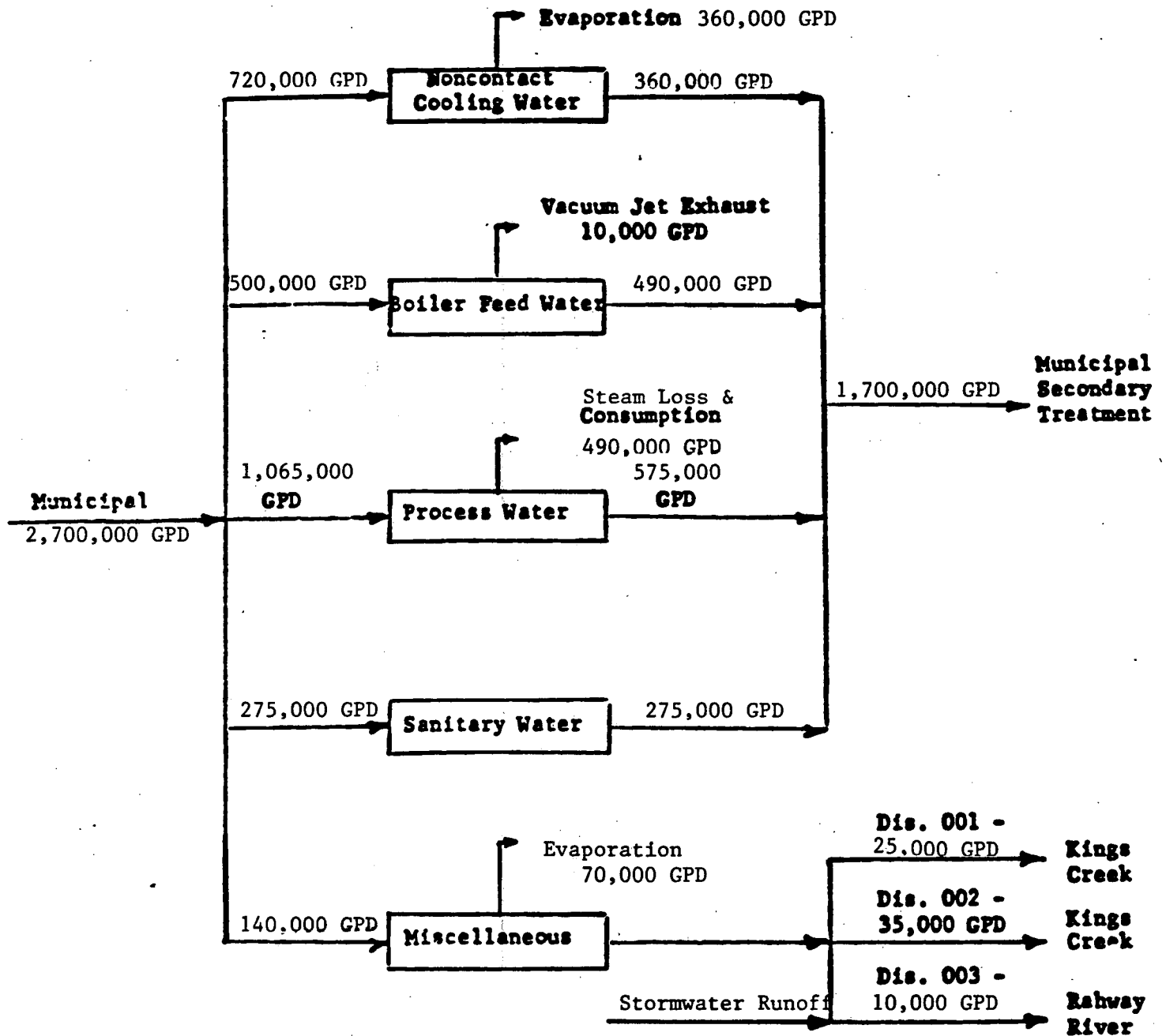
B. PHONE NO. (area code & no.)

C. SIGNATURE

D. DATE SIGNED

Robert Boisclair

March 25, 1988



Stormwater Runoff → Kings Creek

Dis. 013
 Dis. 015
 Dis. 016
 Dis. 026
 Dis. 027
 Dis. 029
 Dis. 030
 Dis. 031
 Dis. 032 Dis. 034
 Dis. 033 Dis. 036

ATTACHMENT II

- 1) 1/26/82 Summons, Linden Municipal Court
 (Central Jersey Regional Environmental Health Agency -
 Notice of Violation)
 - odor releases in violation of Linden Air
Pollution Code at Rahway facility
 - \$50.00 fine paid

- 2) 2/01/82 Summons, Linden Municipal Court
 (Central Jersey Regional Environmental Health
 Agency - Notice of Violation)
 - odor releases in violation of Linden Air
Pollution Code at Rahway facility
 - \$75.00 fine paid

- 3) 2/16/82 Summons, Linden Municipal Court
 (Central Jersey Regional Environmental Health
 Agency - Notice of Violation)
 - odor releases in violation of Linden Air
Pollution Code at Rahway facility
 - \$100.00 fine paid

- 4) 2/22/82 Summons, Linden Municipal Court
 (Central Jersey Regional Environmental Health
 Agency - Notice of Violation)
 - odor releases in violation of Linden Air
Pollution Code at Rahway facility
 - \$100.00 fine paid

- 5) 3/07/82 Summons, Linden Municipal Court
 (Central Jersey Regional Environmental Health
 Agency - Notice of Violation)
 - odor releases in violation of Linden Air
Pollution Code at Rahway facility
 - \$50.00 fine paid

- 6) 3/08/82 Summons, Linden Municipal Court
(Central Jersey Regional Environmental Health Agency -
Notice of Violation)
- odor releases in violation of Linden Air
Pollution Code at Rahway facility
 - \$50.00 fine paid
- 7) 6/17/82 Administrative Consent Order (NJDEP)
- violation of NJ air pollution control
regulations at Rahway facility
 - compliance schedule entered into concerning
repair and/or replacement and/or upgrade of
equipment at facility
- 8) 7/20/82 Summons, Linden Municipal Court
(Central Jersey Regional Environmental Health
Agency - Notice of Violation)
- odor releases in violation of Linden Air
Pollution Code at Rahway facility
 - \$100.00 fine paid
- 9) 8/25/82 Summons, Linden Municipal Court
(Central Jersey Regional Environmental Health
Agency - Notice of Violation)
- odor releases in violation of Linden Air
Pollution Code at Rahway facility
 - \$200.00 fine paid
- 10) 10/24/82 Summons, Linden Municipal Court
(Central Jersey Regional Environmental Health
Agency - Notice of Violation)
- odor releases in violation of Linden Air
Pollution Code at Rahway facility
 - \$100.00 fine paid

- 11) 11/30/82 Notice of Violation
(Georgia Department of Natural Resources)
- violations at Flint River facility of Georgia Hazardous Waste Regulations (waste analysis, contingency plan, closure/post-closure plan, financial assurance, and local authorities arrangements sections)
 - compliance schedule entered into
- 12) 2/18/83 Notice of Violation (GA DNR)
- violations of Georgia Hazardous Waste Regulations at Flint River facility (groundwater monitoring, financial assurance and manifest sections)
 - compliance schedule entered into
- 13) 8/19/83 Notice of Prosecution (NJDEP)
- odor release in violation of New Jersey air pollution control regulations
 - \$2500.00 fine paid
- 14) 11/29/84 Administrative Order and Notice of Civil Administrative Penalty Assessment (NJDEP)
- air release in violation of New Jersey air pollution control regulations
 - \$2500.00 fine paid
- 15) 12/24/84 Notice of Prosecution (NJDEP)
- air release in violation of New Jersey air pollution control regulations
 - \$1900.00 fine paid

- 16) 7/16/85 Administrative Order and Notice of Civil Administrative
7/19/85 Penalty Assessment (NJDEP)
- operation of specific ventilation without air permits, in violation of New Jersey air pollution control regulations
 - \$6600.00 fine paid
- 17) 8/14/85 Administrative Order and Notice of Civil Administrative
Penalty Assessment (NJDEP)
- odor release in violation of New Jersey air pollution control regulations
 - \$400.00 fine paid
- 18) 1/03/86 Administrative Order and Notice of Civil Administrative
Penalty Assessment (NJDEP)
- air release in violation of New Jersey air pollution control regulations
 - \$9000.00 fine paid
- 19) 3/13/86 Administrative Order and Notice of Civil Administrative
Penalty Assessment (NJDEP)
- odor release in violation of New Jersey air pollution control regulations
 - \$200.00 fine paid
- 20) 3/25/86 Administrative Order and Notice of Civil Administrative
Penalty Assessment (NJDEP)
- discharge in violation of New Jersey water pollution control regulations
 - \$4500.00 fine paid
- 21) 4/30/87 Administrative Order and Notice of Civil Administrative
Penalty Assessment (NJDEP)
- air release in violation of New Jersey air pollution control regulations
 - \$200.00 fine paid

Let's protect our earth



State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF WATER RESOURCES

METRO BUREAU OF REGIONAL ENFORCEMENT

2 BABCOCK PLACE

WEST ORANGE, NEW JERSEY 07052

GEORGE G. McCANN, P.E.
DIRECTOR

March 18, 1988

DIRK C. HOFMAN, P.E.
DEPUTY DIRECTOR

Mrs. Theresa Jones, Environmental Engineer
Merck Chemical Manufacturing Division
126 E. Lincoln Avenue
P.O. Box 2000
Mail Code R7-30
Rahway, NJ 07065

Re: Compliance Evaluation Inspection
Merck and Company, Incorporated
NJPDES No. NJ 0002348
Rahway/Union County

Dear Mrs. Jones:

A Compliance Evaluation Inspection of your facility was conducted by a representative of this Division on March 10, 1988.

Your facility received a rating of "ACCEPTABLE". A copy of the completed inspection report form is enclosed for your information. Please address any minor deficiencies noted therein.

This Division anticipates your continued cooperation in assisting us in the prevention and control of water pollution in New Jersey.

Very truly yours,

Steven Ciambuschini

Steven A. Ciambuschini
Environmental Specialist
Metro Bureau of
Regional Enforcement

A7:G25

c: Dr. Richard A. Baker, USEPA
Mr. Paul Molinari, USEPA
Mr. Anthony Diege, H.O.

New Jersey Is An Equal Opportunity Employer

Enclosure



NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
CN 029, Trenton, N.J. 08625



DISCHARGE SURVEILLANCE REPORT

PERMIT # NJ0002348 NO. OF DISCHARGES 8 CLASS MAJ/IND
DISCHARGER Merck Chemical Manufacturing Division
OWNER Merck & Co. Incorporated
MUNICIPALITY Rahway COUNTY Union WATERSHED CODE R
LOCATION 126 E. Lincoln Avenue P.O. Box 2000 Mail Code: R7-30
RECEIVING WATERS Kings Creek & Rahway River STREAM CLASS SE-2
LICENSED OPERATOR & PLANT CLASS Theresa Jones N-2
TRAINEE/ASSISTANT _____ OTHER INFO. (201) 574-7929

DEFICIENCIES OR COMMENTS - None -

OVERALL RATING ☒ Acceptable ☐ Conditionally Acceptable ☐ Unacceptable

EVALUATOR Steven Ciambroschini TITLE Environmental Specialist
INFORMATION FURNISHED BY (Name) Theresa Jones, Joan Jans
(Title) Eut'z Engineers (Organization) Merck & Co. Inc.

DATE OF INSPECTION March 10, 1988

N.J.D.E.P.
D.W.R.

DISCHARGE SURVEILLANCE REPORT



Page 2 of 3 (I)

Permit #: NJ0002348

Date: 3/10/88

INDUSTRIAL TREATMENT PROCESS EVALUATION			
RATING CODES: S = Satisfactory M = Marginal U = Unsatisfactory NA = Not Applicable			
		RATING	COMMENTS
GENERAL	DISCHARGE #	001	---
	WASTEWATER SOURCE(S)	---	NCCW HVAC system, stormwater runoff
	CONTINUITY OF OPERATION	---	Intermittent
	BYPASSES/OVERFLOWS	NA	
	S.P.C.C. PLAN	S	
	ALARM SYSTEMS	NA	
	ALTERNATE POWER SUPPLY	NA	
TREATMENT PROCESSES	DPCC/DRCR BMP Plan		
		NA	
SLUDGE HANDLING			
INFORMATION	DISPOSAL SITE	NA	
	FLOW METER & RECORDER	S	Sampling station for particle velocity/meters/depth
	RECORDS	S/S	Permit / DMR's
	SAMPLING PROCEDURES	-	Company / personnel
	ANALYSES PERFORMED BY	S	Merck & Co. Cert # 20374
			Princeton Science # 12064
			1 R.S.A # 20232
			R.V. SA # 20210
OTHER	Manufacture of Pharmaceuticals & Animal & Health Products		
	FINAL EFFLUENT APPEARANCE	-	Clear
	REC. WATERS APPEARANCE	NE	Kings Creek



N.J.D.E.P.
D.W.R.

DISCHARGE SURVEILLANCE REPORT



Page 2 of 3 (I)

Permit #: NJ00023-18

Date: 3/10/88

INDUSTRIAL TREATMENT PROCESS EVALUATION			
RATING CODES: S = Satisfactory M = Marginal U = Unsatisfactory NA = Not Applicable			
		RATING	COMMENTS
GENERAL	DISCHARGE # 002	---	Root drains, HVAC system, Storm water Runoff
	WASTEWATER SOURCE(S)	---	
	CONTINUITY OF OPERATION	---	
	BYPASSES/OVERFLOWS	NA	
	S.P.C.C. PLAN	S	
	ALARM SYSTEMS	NA	
	ALTERNATE POWER SUPPLY	NA	
TREATMENT PROCESSES	DPEC/DCR BMP		
		NA	
SLUDGE HANDLING			
	DISPOSAL SITE	NA	
INFORMATION	FLOW METER & RECORDER	S	Metered
	RECORDS	S/S	Permit/pm's
	SAMPLING PROCEDURES	-	Company personnel
	ANALYSES PERFORMED BY	S	Merck & Co Princeton Aqua Science C.R. SA RUSA
OTHER			
	FINAL EFFLUENT APPEARANCE	-	No discharge
	REC. WATERS APPEARANCE	NI	



N.J.D.E.P.
D.W.R.

DISCHARGE SURVEILLANCE REPORT



Page 2 of 3 (I)
Permit #: WT0002348
Date: 3/10/88

INDUSTRIAL TREATMENT PROCESS EVALUATION			
RATING CODES: S = Satisfactory M = Marginal U = Unsatisfactory NA = Not Applicable			
		RATING	COMMENTS
GENERAL	DISCHARGE #	003	---
	WASTEWATER SOURCE(S)	---	NCCW HVAC system, storm water runoff
	CONTINUITY OF OPERATION	---	Continuous
	BYPASSES/OVERFLOWS	NA	
	S.P.C.C. PLAN	S	
	ALARM SYSTEMS	NA	
	ALTERNATE POWER SUPPLY	NA	
TREATMENT PROCESSES	DEC/DEC BMP		
		NA	
SLUDGE HANDLING			
INFORMATION	DISPOSAL SITE	NA	
OTHER	FLOW METER & RECORDER	S	Portable velocity meter
	RECORDS	S/S	Permit / DMR's
	SAMPLING PROCEDURES	-	Company Personnel
	ANALYSES PERFORMED BY	S	Merke & Co.
			Princeton Aqua Science
			L.R.S.A.
			R.U.S.A.
	FINAL EFFLUENT APPEARANCE	NI	
	REC. WATERS APPEARANCE	NI	

N.J.D.E.P.
D.P.R.

DISCHARGE SURVEILLANCE REPORT



Page 2 of 3 (I)

Permit #: NJ0003348

Date: 3/10/88

INDUSTRIAL TREATMENT PROCESS EVALUATION

RATING CODES: S = Satisfactory M = Marginal U = Unsatisfactory NA = Not Applicable

		RATING	COMMENTS
GENERAL	DISCHARGE # 005 STU	---	Process waste water, sanitary, MFC Storm drains,
	WASTEWATER SOURCE(S)	---	NCCW, Boiler Blowdowns, CW destruct
	CONTINUITY OF OPERATION	---	Continues
	BYPASSES/OVERFLOWS	-	Bypass pretreatment to CRSA
	S.P.C.C. PLAN	S	
	ALARM SYSTEMS	S	
	ALTERNATE POWER SUPPLY	S	Generator
TREATMENT PROCESSES	DPEC/DCR BMP		
	Oil/Water Separator		For 2 oil unloading areas
	Equalization		Tank 110-120 300,000 gal tanks
	Neutralization		2 14,000 gal tanks caustic or acid added
	Spill tank		Tank #100 capacity of 8 hr flow if tanks 110 & 120 too high
SLUDGE HANDLING			
	TSD Facility		
	DISPOSAL SITE	-	EPA Id # NJ0001317064
INFORMATION	FLOW METER & RECORDER	S	Metered
	RECORDS	S	Permit/DMR's
	SAMPLING PROCEDURES	-	Company personnel
	ANALYSES PERFORMED BY	S	Merck & Co.
			Princeton Avon Science
			I.R.S.A.
OTHER	FINAL EFFLUENT APPEARANCE	NI	
	REC. WATERS APPEARANCE	NI	London Roselle Sewerage Authority



N.J.D.E.P.
D.W.R.

DISCHARGE SURVEILLANCE REPORT



Page 2 of 3 (I)
Permit #: NJ00002348
Date: 3/10/88

INDUSTRIAL TREATMENT PROCESS EVALUATION			
RATING CODES: S = Satisfactory M = Marginal U = Unsatisfactory NA = Not Applicable			
	RATING	COMMENTS	
GENERAL	DISCHARGE # 007 STU	---	
	WASTEWATER SOURCE(S)	---	Sanitary & Research Wastewater
	CONTINUITY OF OPERATION	---	Continuous
	BYPASSES/OVERFLOWS	-	Rahway Valley Sewerage Authority
	S.P.C.C. PLAN	S	
	ALARM SYSTEMS	NA	
	ALTERNATE POWER SUPPLY	NA	
	OPCC/PCR BMP		
TREATMENT PROCESSES			
		NA	
SLUDGE HANDLING			
INFORMATION	DISPOSAL SITE	NA	
	FLOW METER & RECORDER	S	pH & flow meter
	RECORDS	S/S	Permit / Dmr's
	SAMPLING PROCEDURES	-	Company personnel
	ANALYSES PERFORMED BY	S	Princeton Applied Science PUSA
OTHER	FINAL EFFLUENT APPEARANCE	NT	
	REC. WATERS APPEARANCE	NT	Rahway Valley Sewerage Authority



N.J.D.E.P.
D.W.R.

DISCHARGE SURVEILLANCE REPORT



Page 2 of 3 (I)
Permit #: NTJ 00348
Date: 3/10/88

INDUSTRIAL TREATMENT PROCESS EVALUATION		
RATING CODES: S = Satisfactory M = Marginal U = Unsatisfactory NA = Not Applicable		
	RATING	COMMENTS
GENERAL	DISCHARGE # <u>012</u>	---
	WASTEWATER SOURCE(S)	---
	CONTINUITY OF OPERATION	---
	BYPASSES/OVERFLOWS	S
	S.P.C.C. PLAN	S
	ALARM SYSTEMS	NA
	ALTERNATE POWER SUPPLY	NA
TREATMENT PROCESSES	<u>OPCC/DCR</u>	
		NA
SLUDGE HANDLING		
INFORMATION	DISPOSAL SITE	NA
	FLOW METER & RECORDER	S
	RECORDS	S/S
	SAMPLING PROCEDURES	-
	ANALYSES PERFORMED BY	S
OTHER	FINAL EFFLUENT APPEARANCE	NI
	REC. WATERS APPEARANCE	NI

Sanitary & Lab Waste
Continuous
Rahway Valley Sewerage Authority

pH & Flow meter
Permit / DMR's
Company personnel
Princeton Aqua Science
RUSA

RUSA



INDUSTRIAL TREATMENT PROCESS EVALUATION

RATING CODES: S = Satisfactory M = Marginal U = Unsatisfactory NA = Not Applicable

		RATING	COMMENTS
GENERAL	DISCHARGE # 013-015	---	
	WASTEWATER SOURCE(S)	---	Stormwater Runoff
	CONTINUITY OF OPERATION	---	Intermittent
	BYPASSES/OVERFLOWS	NA	
	S.P.C.C. PLAN	S	
	ALARM SYSTEMS	NA	
	ALTERNATE POWER SUPPLY	NA	
TREATMENT PROCESSES			
		NA	
SLUDGE HANDLING			
	DISPOSAL SITE	NA	
INFORMATION	FLOW METER & RECORDER	-	
	RECORDS	S	
	SAMPLING PROCEDURES	S	
	ANALYSES PERFORMED BY	S	
OTHER			
	FINAL EFFLUENT APPEARANCE	NI	
	REC. WATERS APPEARANCE	NI	



DISCHARGE SURVEILLANCE REPORT

Permit # NJ00002348
Date 3/10/88

PLANT DIAGRAM AND FLOW SEQUENCE:

nccw & stormwater runoff → OSN 001

nccw & stormwater runoff → OSN 002

DISCHARGE DATA

SOURCE: No Samples Taken

PERIOD: _____

DIS	PARA	SAMPLE TYPE	PERMIT LIMITS	DATA	DIS	PARA	SAMPLE TYPE	PERMIT LIMITS	DATA
001	pH	Grab	6.0-9.0	—	001	ZN	Grab	1.0mg/l	—
"	TO	"	30°C	—					
"	BOD	Comp	11.4 kg/day	—					
"	TSS	"	11.4 kg/day	—					
"	COD	"	100mg/l	—					
"	oil & grease	Grab	15mg/l	—					
"	Cr	"	1.0mg/l	—					

DISCHARGE DATA

SOURCE: No Samples Taken

PERIOD: _____

DIS	PARA	SAMPLE TYPE	PERMIT LIMITS	DATA	DIS	PARA	SAMPLE TYPE	PERMIT LIMITS	DATA
002	pH	Grab	6.0-9.0	—		ZN	Grab	1.0mg/l	—
"	TO	"	30°C	—		Chloride	"	NA	—
"	BOD	Comp	9.0kg/day	—					
"	TSS	"	8.0kg/day	—					
"	COD	"	100mg/l	—					
"	oil & grease	Grab	15mg/l	—					
"	Cr	"	1.0mg/l	—					

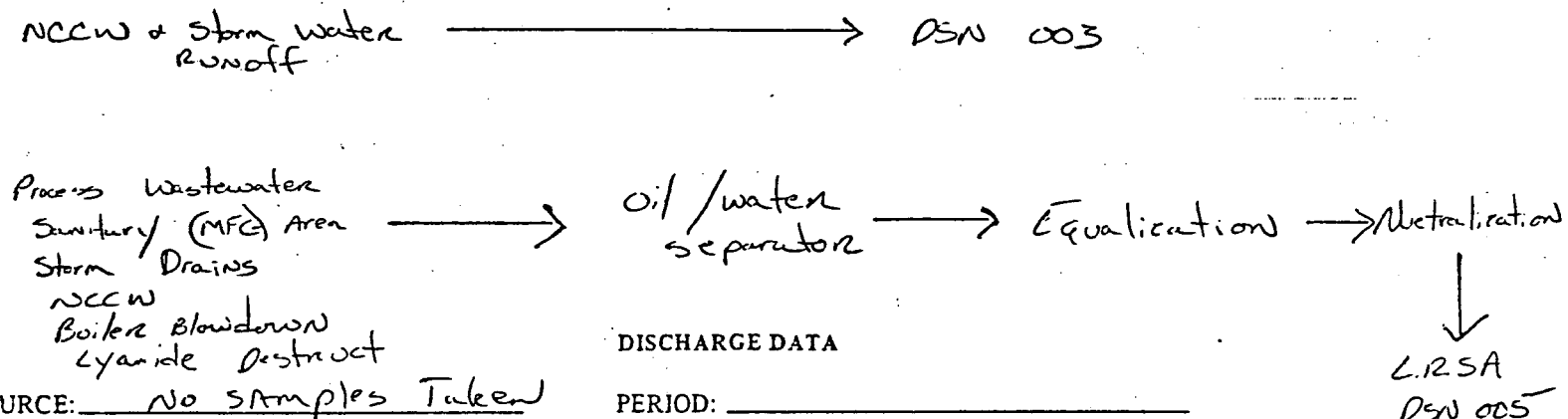
MONITORING DEFICIENCIES: _____



DISCHARGE SURVEILLANCE REPORT

Permit # NJ000033/8
Date 3/10/88

ANT DIAGRAM AND FLOW SEQUENCE:



DIS	PARA	SAMPLE TYPE	PERMIT LIMITS	DATA	DIS	PARA	SAMPLE TYPE	PERMIT LIMITS	DATA
5	pH	Grab	6.0-9.0	—					
"	Cr	"	1.0mg/l	—					
"	Zn	"	1.0mg/l	—					
"	BOD	"	7.0 kg/d	—					
"	TSS	"	7.0 kg/d	—					

DISCHARGE DATA

SOURCE: No Samples Taken PERIOD: _____

S	PARA	SAMPLE TYPE	PERMIT LIMITS	DATA	DIS	PARA	SAMPLE TYPE	PERMIT LIMITS	DATA
5	pH	Grab	6.0-9.0	—	003	Zn	Grab	1.0mg/l	—
"	TO	"	43.5°C	—	"	chloride	"	1.0mg/l	—
"	BOD	"	7.0 kg/d	—					
"	TSS	"	7.0 kg/d	—					
"	COD	"	100mg/l	—					
"	oil & Grease	"	15mg/l	—					
"	Cr	"	1.0mg/l	—					

MONITORING DEFICIENCIES: _____

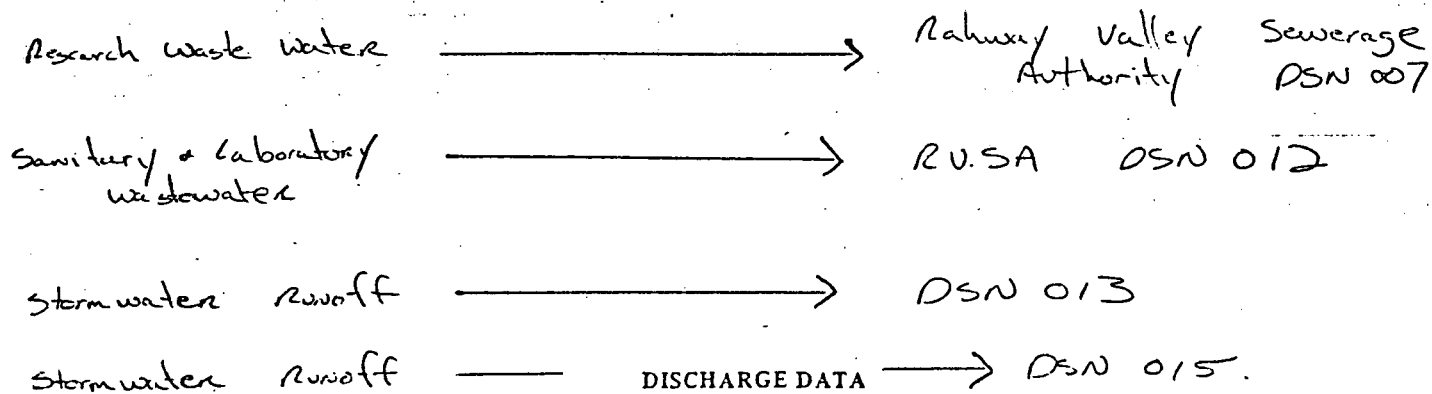
NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
CN 029, Trenton, N.J. 08625

Page 3 of 3

DISCHARGE SURVEILLANCE REPORT

Permit # NT000339/8
Date 3/10/88

PLANT DIAGRAM AND FLOW SEQUENCE:



SOURCE: _____

PERIOD: No Samples Taken

DIS	PARA	SAMPLE TYPE	PERMIT LIMITS	DATA	DIS	PARA	SAMPLE TYPE	PERMIT LIMITS	DATA
007	pH	Grab	6.0-9.0	—	012	pH	Grab	6.0-9.0	—
"	Cr	"	1.0mg/l	—	"	Cr	"	1.0mg/l	—
"	ZN	"	1.0mg/l	—	"	ZN	"	1.0mg/l	—
"	BOD	"	7.0kg/d	—	"	BOD	"	7.0kg/d	—
"	TSS	"	7.0kg/d	—	"	TSS	"	7.0kg/d	—

DISCHARGE DATA

SOURCE: _____

PERIOD: No Samples Taken

DIS	PARA	SAMPLE TYPE	PERMIT LIMITS	DATA	DIS	PARA	SAMPLE TYPE	PERMIT LIMITS	DATA
013	pH	Grab	6.0-9.0	—		pH	Grab	6.0-9.0	—
	COD	"	100mg/l	—		COD	"	100mg/l	—
	TSS	"	100mg/l	—		TSS	"	100mg/l	—
	Oil & Grease	"	10mg/l	—		Oil & Grease	"	10mg/l	—

MONITORING DEFICIENCIES: _____

IN THE MATTER OF
MERCK CHEMICAL MANUFACTURING DIVISION
MERCK & COMPANY, INCORPORATED

: ADMINISTRATIVE ORDER
: AND
: NOTICE OF CIVIL ADMINISTRATIVE
: PENALTY ASSESSMENT

DRAFT

DRAFT

THIS Administrative Order and Notice of Civil Administrative

Penalty Assessment is issued pursuant to the authority vested
in the Commissioner of the New Jersey Department of Environmental
Protection (hereinafter "NJDEP" or the "Department") by N.J.S.A.
13:1D-1 et seq. and the Water Pollution Control Act, N.J.S.A.
58:10A-1 et seq., and duly delegated to the Director of the
Division of Water Resources pursuant to N.J.S.A. 13:1B-4.

FINDINGS

1. Merck & Company, Incorporated (Merck) owns and operates a
chemical manufacturing facility located at 126 East Lincoln
Avenue, Block 1, Lot 1, Rahway, Union County, State of
New Jersey.
2. On Tuesday March 25, 1986, in response to a complaint from
the Middlesex County Health Department, representatives of
NJDEP conducted an investigation of the Merck facility.
The inspection revealed that ^{Merck was discharging} industrial solvents were

being discharged from the Merck facility into Kings Creek, ^{without a valid NJPDES permit, for this discharge.}
a tributary of the Rahway River. NJDEP representatives
and Merck employees determined that the source of the con-
tamination was likely from one of the two underground force
mains used to transport industrial wastes to the Industrial
Pretreatment area. Water samples were taken from three (3)
locations along Kings Creek in order to isolate the discharge
point. Analysis of these samples revealed the following
concentrations of pollutants:

Sample Laboratory Certification No. 7263 (Volatile Organics Scan)	Concentration
Bromodichloromethane	5.47 ppb
1,1 Dichloroethane	3.90
1,2 Dichloroethane	5.29
1,2 Dichloroethene	87.80
Methylene Chloride (Dichloromethane)	179.00
1,1,1 Trichloroethane	181.00
Trichloroethene	183.00
Dichlorodifluoromethane	3.40

Sample Laboratory Certification No. 7264 (Volatile Organics Scan)	Concentration
Benzene	25,000 ppb
Carbon Tetrachloride	316
Chlorobenzene	14,050

Chloroform	430
1,2 Dichloroethene	164
Ethylbenzene	59.9
Methylene Chloride (Dichloromethane)	20,900
1,1,2,2 Tetrachloroethane	49
Tetrachloroethene	12.9
Toluene	6,350
1,1,1 Trichloroethane	84.5
Trichloroethene	223
1,2 Dichlorobenzene	12,200
Vinyl Chloride	408

Sample Laboratory Certification No. 7265 (Volatile Organics Scan)	Concentration
Benzene	14,000 ppb
Bromoform	150
Carbon Tetrachloride	145
Chlorobenzene	3,350
Chloroform	205
1,1 Dichloroethane	55
1,2 Dichloroethene	110
1,2 Dichloropropane	3,150
Ethylbenzene	72.5
Methylene Chloride (Dichloromethane)	5,000
Toluene	1,712
Trichloroethene	65
Dichlorodifluoromethane	225

4. On March 25, 1986 NJDEP issued a TELEGRAM ORDER which directed Merck to:

- a. Immediately institute all measures necessary to cease the discharge of pollutants to Kings Creek. These measures should include the installation of booms, barriers, trenches, and portable pumping equipment and the use of absorbent materials or other measures called for in the facilities S.P.C.C. Plan.
- b. Review all storage and handling equipment including tanks, piping, pumps and contaminated facilities in order to identify and eliminate the source of the uncontrolled release of pollutants to Kings Creek.
- c. Make daily progress reports by telephone to Mr. Stefan D. Sedlak or Mr. Timothy J. Doolan at (201) 669-3900 during working hours (8:00 AM - 4:00 PM) until this matter is corrected.
- d. Submit a written report to this office (2 Babcock Place, West Orange, NJ 07052) within fourteen (14) days of the issuance of this Telegram Order detailing the cause(s) of this discharge and the corrective measures implemented.

5. On March 26, 1986 Ms. Terese M. Jones Merck's Site Environmental Engineer telephoned the NJDEP to report that Merck had isolated the break in the industrial sanitary sewer line. All repairs were completed on the same day.
6. On March 27, 1986 Ms. ~~Terese M.~~ Jones telephoned the NJDEP to report that Merck employees had excavated the area of the sewer line break and found that a twelve (12) inch diameter line had cracked. Merck employees used cement to plug all the cracks in the twelve (12) inch diameter sewer line and the forty-eight (48) inch diameter pipe through which Kings Creek flows.
7. On March 27, 1986 NJDEP received a complete report regarding the discharge from Merck into Kings Creek as required by the March 25, 1986 Telegram Order.
8. Based on the facts set forth in these FINDINGS, the Department has determined that Merck ^{has caused a discharge to the waters of the state without a} ~~has violated~~ the Water Pollution ^{valid NJDEP} Control Act, N.J.S.A. 58:10A-1 et seq., specifically N.J.S.A. ^{permit is violated} of 58:10A-6, and the regulations promulgated pursuant thereto, N.J.A.C. 7:14A-1 et seq., specifically N.J.A.C. 7:14A-1.2.

My Down
exp

MCMD

MERCK CHEMICAL MANUFACTURING DIVISION
MERCK & CO., INC.
P.O. BOX 2000, RAHWAY, NEW JERSEY 07065-0908
(201) 574-4000

April 10, 1986

Mr. Peter T. Lynch
State of New Jersey
Department of Environmental Protection
Division of Water Resources
Chief Metro Bureau of Regional Enforcement
2 Babcock Place
West Orange, NJ 07052

APR 14 1986

DEPT. ENVIRONMENTAL PROTECTION
NEWARK OFFICE

Mr. Lynch:

In response to your telegram received March 27, 1986 (see attached), this is a report on the discharge from the Merck & Co., Inc. Rahway facility into Kings Creek on March 25, 1986.

MARCH 25, 1986

In the early morning, Merck & Co., Inc. was informed by Ms. Helen Mikula, Middlesex County Health Department, of a potential discharge into Kings Creek from the site. In response, Mr. Frank Mroz, Site Environmental Control Supervisor, accompanied Ms. Mikula to track down the source of the discharge. It was determined that the material was not entering the creek from a point where the creek is aboveground, but was entering the creek somewhere along its 300 yard underground transverse across the Merck & Co., Inc. property.

At 5:30 a.m., Bill Honachefsky of the NJDEP-DWR-ERCOM Unit arrived on site, and Mrs. Terese Jones, Site Environmental Engineer, accompanied him to sample the creek and attempt to determine the still unknown source of the contamination. At the time Mr. Honachefsky left (8:30 a.m.), it was thought that the contamination was from the area of shed 65 (see attached map) and that there was no apparent discharge continuing (all pipes which discharge into the creek were dry). Mr. Honachefsky recommended dye and smoke testing to determine the source of the discharge. LEL meter readings were taken of all areas with all readings less than five percent.

Merck & Co., Inc. continued to track the source of the contamination through dye testing, pH monitoring, and other labeling techniques. Mr. Timothy Doolan, of your office, arrived on site at 12:30 p.m. to evaluate the situation and agreed with our course of action in trying to evaluate the source. At this time, the area of entry into the creek was narrowed down to approximately a 40 yard stretch with, unfortunately, no entry from aboveground. Mr. Doolan was informed at this time that the discharge into the creek was thought to be emanating from a leaking sewer line, most probably one of two force mains which connect the Building 98 lift station to the Industrial Pretreatment area.

ATTACHMENT G-1

50

The Linden-Roselle Sewerage Authority was informed that the Merck Rahway facility would be bypassing the pretreatment area in an attempt to decrease the magnitude of the discharge. Additional steps taken by Merck include instruction to personnel on how to respond if there were a spill of hazardous substance at this time since the 300,000 gallon spill diversion system was being temporarily bypassed and monitoring of the creek was set up to look for large fluctuations on pH or flow which may indicate a change in the discharge rate. There was no visible variation in the flow overnight, and the pH remained consistent between eight and nine.

MARCH 28, 1986

Variations in the levels in different sewer lines along with dye testing finally isolated the area of the discharge into the creek to an approximately 15 yard area. Excavation was, at this point, the only means of determining the actual entry point of the contamination. The leaking line was identified and plugged on the afternoon of March 26, 1986. Verbal progress reports were telephoned into your office, the MCHD, and LRSA by Terese Jones.

SUMMARY

The cause of the uncontrollable discharge was a leaking 12 inch sewer line into which a 30 inch main was surcharging. This 12 inch gravity line services the compactor area. The entry into the creek was not through a discharge pipe but through cracks in the walls of the 48 inch pipe which houses the creek. Upon identification of the source, the level in the sewer line was lowered as quickly as possible to a level which permitted entry of personnel to safely plug the line. An LRSA employee was instrumental in assisting Merck employees in locating the necessary plug for the sealing off of the leaking line. The line was then permanently sealed and plugged by excavating nine feet down and plugging it with concrete. The cracks in the walls of the creek were also plugged.

Calculations comparing the COD present in the creek to average levels in the Merck & Co., Inc. discharge to LRSA along with flow calculations estimate the discharge flow rate to be less than 15 gallons per minute. In addition, preliminary results received from Princeton Aqua Science (NJ Lab Certification No. 12064) show that the quantity of volatile organic substances released did not exceed a reportable quantity as defined in federal guidelines.

MONITORING OF KINGS CREEK

A monitoring program has been set up, whereby, Kings Creek is inspected a minimum of once per day for discoloration, sheen, pH or unnatural odor for early detection of uncontrollable discharges into the creek either from the Merck & Co., Inc. site or other underground sources. Please note that the surface water discharged into Kings Creek is monitored in accordance with requirements of their permit or for purposes of application submission.

Should you have any questions concerning the submission of this report or require further detail, please contact me at (201) 574-7929.

Sincerely,



Terese M. Jones
Site Environmental Engineer

/ls
0149L
Attachment
CERTIFIED

cc: Mr. Anthony D. Diege
Rahway Health Department
Rahway, NJ 07065

Mr. Timothy Doolan
Regional Enforcement
West Orange, NJ 07052

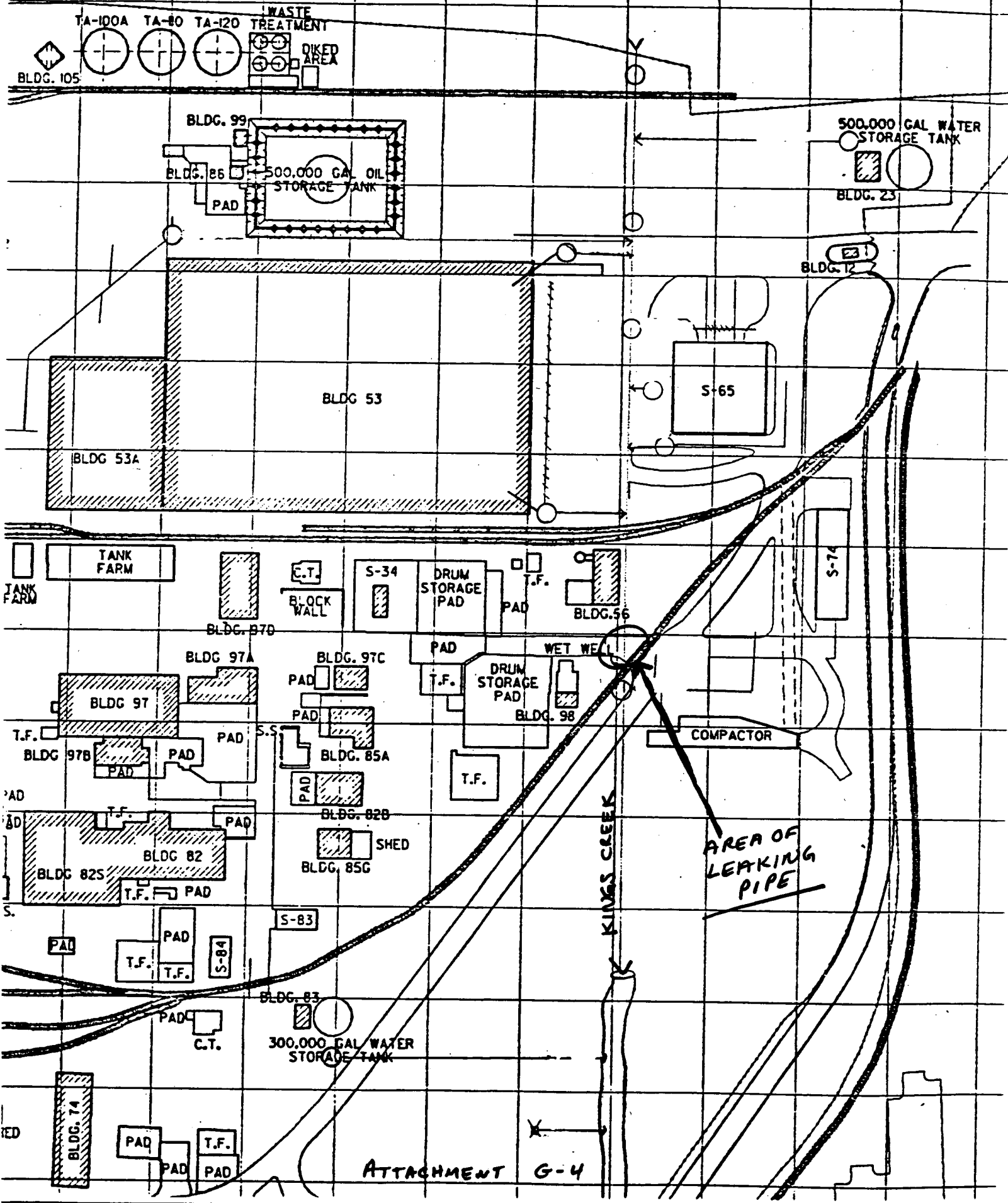
Mrs. Sandra Greci
Linden-Roselle Sewerage Authority
Linden, NJ 07036

Mr. Richard Hills
Middlesex County Health Department
Perth Amboy, NJ 08861

Mr. William Honachefsky
DWR-ERCOM Unit
Trenton, NJ 08625

Mr. George C. McCann, Acting Director
Regional Enforcement
West Orange, NJ 07052

ATTACHMENT



MEMO

NEW JERSEY STATE DEPARTMENT OF ENVIRONMENTAL PROTECTION

TO File DATE 28 FEB 1986

FROM Ali Chaudhry

SUBJECT Merck & Co., Rahway, Enforcement File Review

I reviewed the above subject facility's enforcement file on February 26, 1986. The purpose of this review was to determine if Merck & Co. had any accident, related to hazardous waste handling operations, at this location. This issue was revised by one commentator at the November 26, 1986 public hearing on the draft permit for Merck & Co. The enforcement file consists of the following documents:

1. Memo: EJL to JR dated May 23, 1985.
Failure to respond to a technical NOD.
2. Memo: Rich Collister to file dated 5/28/85.
Merck & Co., Inc. submitted response to the BHWE and complied with the NOD requirement.
3. Letter: Mr. F. Catania to Home News dated February 5, 1985 for inspection of company files.
4. Memo: D. J. Shotwell to A. Cavalier dated July 7, 1984
regarding disclosure statement review.
5. Letter: D. J. Shotwell to company dated October 21, 1983 -
Failure to submit annual report for calendar year 1982.
5. Letter: D. J. Shotwell to company dated January 7, 1983.
Failure to submit annual report for calendar year 1981.

There is no record of any accident at Merck & Co. Inc., Rahway plant, in the BCE file related to hazardous waste handling operations.

EP11/slw

ATTACHMENT 6-H-1

MEMO

NEW JERSEY STATE DEPARTMENT OF ENVIRONMENTAL PROTECTION

TO File DATE 21 MAR 1985

FROM Jim Bell, Senior Environmental Engineer JB

SUBJECT Merck & Company, Rahway, Application # 84-36H

A site visit was conducted at the above referenced facility on March 21, 1985, by Tom Sherman and Jim Bell of the Bureau of Hazardous Waste Engineering. The purpose of the site visit was to determine if a soil contaminant monitoring program will be required for the facility.

The company submitted a letter on March 7, 1985 stating that the site has an extensive spill protection program and therefore soil sampling should not be required.

The inspection revealed that all container storage areas are equipped with secondary containment along with sumps which lead directly to the chemical sewer which leads to an on-site WWTP. The unloading operations are conducted directly on the storage pads. Also, the area surrounding the container storage areas were asphalted and no exposed surfaces were present.

The inspection revealed that all tank storage areas also had secondary containment. Most of the areas did not have exposed earthen surface areas outside of the secondary containment (asphalt paved). There were three tanks that had gravel surrounding the secondary containment. However, piping from the tanks was all overhead and it did not appear that spills from loading or unloading operations would result in soil contamination.

There was one area near the old fuel tank (tank area 8) that was gravelled and appeared to be contaminated with oil. Tom Puchalski, Environmental Coordinator, advised us that this was from a spill when the old fuel tank was used to store #2 oil for the incinerator. This was not from waste operations and the unloading operations are no longer conducted in this area. Mr. Puchalski was advised that we would let him know what should be done with the area near the old fuel tank.

EP13:cm



Jim - fee

State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF WASTE MANAGEMENT

32 E. Hanover St., CN 028, Trenton, N.J. 08625

MARWAN M. SADAT, P.E.
DIRECTOR

LINO F. PEREIRA, P.E.
DEPUTY DIRECTOR

13 NOV 1984

Mr. Thomas Puchalski
Environmental Control Manager
Merck and Company, Inc.
P.O. Box 2000
Rahway, NJ 07065

RE: Partial Closure of Merck and Company, Inc., Rahway, Union County, EPA ID NO.
NJD 001 317 064, DEP Project #CP-83-3

Dear Mr. Puchalski:

The Bureau of Hazardous Waste Engineering is in receipt of the certification by Charles Pfrommer, Jr., P.E. for partial closure of several hazardous waste activities at the above referenced facility.

As a result of this certification, the Bureau has concluded that the incinerator, several container storage areas, and several tank storage areas have been properly closed in accordance with the New Jersey Hazardous Waste Management Regulations, N.J.A.C. 7:26-1 et seq.

Should you have any questions, please contact Jim Bell, of my staff, at (609) 292-9159.

Very truly yours,

Frank Coolick, Chief
Bureau of Hazardous Waste Engineering

EP13/slw



IT CORPORATION

RECEIVED

OCT 2 1984

October 17, 1984

ENVIRONMENTAL CONTROL

Mr. Thomas Puchalski
Environmental Control Manager
Merck & Company, Inc.
P.O. Box 2000
Rahway, New Jersey 07065

Reference: Inspection and Certification of Compliance with NJDEP
Requirements for Partial Closure, EPA I.D. No. NJD 001317064-DEP,
Project No. CP-83-3

Dear Mr. Puchalski:

This is to certify that the requirements for partial closure of hazardous waste management areas at the Merck site in Rahway, New Jersey, as specified by NJDEP, Division of Waste Management, in a letter dated September 11, 1983, have been fulfilled in all respects. The specific closure requirements which have been met are as follows:

A. Incinerator

1. The burning of hazardous waste has been terminated; and
2. All ash has been removed from the secondary chamber and disposed of in accordance with N.J.A.C. 7:26-1 et. seq.

B. Container Storage Areas

1. All waste has been removed from the storage areas; and
2. All areas have been cleaned with high pressure water or by removing the top layer of pads if residues were present.

C. Tank Storage Areas

1. All wastes have been removed from the tanks specified; and
2. All tanks have been flushed with water and the resulting wastewater treated in the wastewater treatment area; and
3. All transfer lines going to and from the tanks have been flushed with water to remove any residual material;
4. The sludge present has been drummed and the drums transferred to a drum storage area pending final disposal.

Yours very truly,

Charles Pfrommer, Jr., P.E.
NJ P.E. No. GE25692

Attachment: NJDEP September 11, 1983, letter

IT Corporation • GSA Raritan Depot • Building 209 Bay F • Edison, New Jersey 08837 • (201) 548-9661

ATTACHMENT I-2

Treatment:

The Building 56 incinerator, a dual chamber trash incinerator, burned waste classified as ignitable as a fuel supplement to oil in the secondary chamber. Only trash was burned in the primary chamber.

For closure, all ash will be removed from the secondary chamber, drummed and sent to a registered hazardous waste landfill for disposal. No other wastes are present to be dealt with.

The incinerator will continue to be used for non-hazardous wastes, using fuel oil.

Drum Storage Areas:

Nine drum storage areas originally shown on the Part A application are not included on the Part B application. Table I shows each area, the quantity of waste currently stored, material construction of the pad and the reason for closure. Two of the nine areas have waste stored in containers. All wastes in these areas will be transferred to a registered on site drum storage area. The waste will then be pumped to bulk tankage for removal to an outside disposal contractor such as Rollins Environmental Services. Containers from the remaining seven areas have previously been sent to a registered on site facility. Each of the areas will be visually examined for any remaining residue. If residues are present, they will be cleaned with high pressure water or by removing the top layer of the pad. The residuals will be disposed of as a hazardous waste.

See Table I on page 2...

TABLE I

<u>Area</u>	<u>Location</u>	<u>Quantity of Waste Present</u>	<u>Base Construction</u>	<u>Reason for Closure</u>
(1)	West side of Bldg. 37	0	Asphalt	Termination of Process Operations
(2)	Bldg. 92 storage along perimeter road	0	Gravel	Consolidation of drum storage areas.
(3)	North side of Bldg. 54	0	Asphalt	Not required. Will be used for fresh storage only.
(4&5)	Two areas at Factory 1	20 drums of waste Non-Chlorinated & Chlorinated Solvent	Asphalt	Factory 1 operations will be terminated June 1, 1983.
(6)	East side of Bldg. 805	0	Asphalt	Consolidation of drum storage areas.
(7)	Environmental Control area along perimeter road	0	Gravel	Consolidation of drum storage areas.
(8)	Along Bldg. 67	0	Asphalt	Termination of Process Operations
(9)	Along Bldg. 68	0	Asphalt	Termination of Process Operations

Hazardous Waste Tankage:

Nine tanks originally shown on the Part A application are not included on the Part B application. Table II shows each storage tank, quantity of waste present and the reason for closure. All waste solvent has been removed from the tanks, with the exception of the solvent tank for the incinerator, and sent to an outside contractor such as Rollins Environmental Services for disposal. Waste from the solvent tank for the incinerator has been incinerated prior to June 1982. This tank has been used as a No. 2 diesel fuel tank since this time and will not have to be cleaned.

All transfer lines going to and from these tanks will be flushed with water and/or solvent and then steamed (if necessary) to remove any residual material. Any visible spills or leakage detected during the decontamination process will immediately be cleaned up. All bulk storage tanks will then be flushed with water. This water will be pumped to the wastewater treatment area. The tanks will be examined for residual sludge. If sludge is present, it will be drummed and treated as a hazardous waste. These tanks will then be available for use as fresh solvent storage tanks.

See Table II on page 4....

TABLE II

Area	Description	Quantity of Waste Present	Reason for Closure
(1)	Tanks 852 & 853 (4T)	0	Due to production requirements, these tanks will be used for fresh material storage. Termination of Process Operations
(2)	Tank 104 (8T)	0	
(3)	Tanks 40 & 41 (2T)	0	
(4)	Tank 10M (12T)	0	Due to the low quantities of waste solvent generated, these tanks will no longer be required for hazardous waste storage.
(5)	Solvent Tank for Incinerator	0	Due to production requirements, these tanks will be used for fresh material storage.
(6)	Tanks 103 & 104 (Solvent Tank)	0	Since the incinerator will no longer be used to burn hazardous wastes, this tank will be used as a storage tank for No. 2 diesel fuel.
			Due to the low quantities of waste solvent generated, these tanks will no longer be required for hazardous waste storage.



INTERNATIONAL
TECHNOLOGY
CORPORATION

RECEIVED
APR 7 1986
ENVIRONMENTAL CONTROL

April 3, 1986

Mr. Thomas Puchalski
Manager, Environmental Control
Merck & Company Incorporated
P.O. Box 2000
Rahway, NJ 07065

Dear Mr. Puchalski:

Enclosed please find our closure certification report for the 5,000 gallon above-ground waste acetonitrile tank located at your Rahway facility. This report was prepared by a registered professional engineer as required by the New Jersey Department of Environmental Protection.

Should you have any questions regarding the enclosed report, please feel free to contact us.

Very truly yours,

INTERNATIONAL TECHNOLOGY CORPORATION

Dana M. Boyadjian

Dana M. Boyadjian, P.E.
Project Manager
Environmental and Civil Engineering

DMB:ydf
#528577

Enclosure

Regional Office

165 Fieldcrest Avenue • CN 7809 • Edison, New Jersey 08818-7809 • (201) 225-2000

ATTACHMENT I-8

CERTIFICATION REPORT

ABOVE GROUND WASTE ACETONITRILE TANK CLOSURE MERCK & COMPANY, INCORPORATED RAHWAY, NEW JERSEY

INTRODUCTION

The following report summarizes the events which occurred at the Merck & Company facility in Rahway, New Jersey during execution of the NJDEP approved RCRA Closure Plan. A copy of the NJDEP tank closure requirements is provided as Attachment A to this report. Implementation of the closure activities was by Merck & Company personnel. Following the completion of tank cleaning actions, International Technology Corporation (IT) was engaged to inspect the tank and evaluate the closure activities.

TANK DECONTAMINATION

Waste acetonitrile was last discharged to the 5,000 gallon above-ground tank in May 1985. Also in May 1985, piping to the tank was flushed and capped off. The tank contents (approximately 3,645 gallons) was then pumped out and properly disposed.

Tank cleaning operations began on February 18, 1986, and were completed on February 20, 1986. Merck & Company personnel stated that no sludge was collected along the tank bottom. This condition existed since the waste acetonitrile was a clean liquid and not a solids bearing type of waste. In addition, prior to the tank being used to store this waste (approximately 1982) the tank had been power washed and drained by a private cleanup contractor (Browning Ferris Industries).

According to Merck & Company personnel the tank was rinsed (February 1986) continuously for several days utilizing approximately 20,000 gallons of water. All rinse water was discharged to the plant's chemical sewer which flows to the Linden-Roselle Sewage Treatment Plant.

Final rinse water was sampled and analyzed by Merck & Company personnel. Results of this analysis for acetonitrile were non-detectable. A report by Merck & Company on the tank cleaning activities and a copy of the rinse water analytical report, are provided as Attachments B and C respectively, to this report.

VISUAL INSPECTION OF THE CLEANED TANK

On March 10, 1986, Mr. Dana Boyadjian, P.E. from IT inspected the waste acetonitrile tank. Visual examination of the tank

indicated it to be dry and clean. No evidence of sludge was noted, only some minor rust and scale at the bottom and sidewalls of the tank.

Based on the information provided to IT by Merck & Company and the visual examination of the tanks and interviews of plant personnel conducted by IT, it is felt that closure activities for the waste acetonitrile tank were conducted in accordance with the closure requirements.

Dana M. Boyadjian

Dana M. Boyadjian, P.E.
INTERNATIONAL TECHNOLOGY CORPORATION

WICMD

WILSON CHEMICAL MANUFACTURING DIVISION
NEW JERSEY

CP-86-16

April 8, 1986

Mr. Asghar Ali Chaudhry
Senior Environmental Engineer
Bureau of Hazardous Waste Engineering
Division of Waste Management
32 East Hanover Street
CN027
Trenton, NJ 08625

Dear Mr. Chaudhry:

In a previous correspondence, we alerted you to the fact that one 5,000-gallon tank which was contaminated with PCBs would not meet the deadline to install level transmitters and high level alarms. After several months of negotiations with outside firms, we are submitting a proposal by ENSCO for DEP's approval. ENSCO will remove the existing tank and transfer it to their Arkansas facility for decontamination. They will replace the tank with a new 5,000-gallon tank. A copy of the ENSCO proposal and drawings for the new tank are included for your reference. Work will begin once the DEP has approved their plan.

Should you have any questions, please feel free to contact me at (201) 574-5361.

Sincerely,

Thomas Puchalski

Thomas Puchalski
Environmental Control Manager

/ls
0145L
Enclosure
CERTIFIED

ATTACHMENT I-11

MEMO

TO Peter Lynch, Chief, Metro Region, Enforcement - DWR

FROM Stefan Sedlak THROUGH: Robert Plumb

DATE DEC 6 1983

SUBJECT Staten Island Odor Problem - File Merck and Co., Inc. NJPDES No. NJ0002348
Linden-Roselle Sewerage Authority NJPDES No. NJ0024953

On November 18, 1983 a meeting was held at the office of the New York Department of Environmental Conservation (NYDEC) to discuss the Staten Island odor problem. Discussions were primarily regarding odors, characterized as cat - urine odors, emanating from Merck and the Linden-Roselle Sewage Treatment Plant (LRSTP). Attached is a list of the people who were present at the meeting.

In addition to the NYDEC, the Interstate Sanitation Commission (ISC) and the Middlesex County Health Department (MCHD) the USEPA has also become involved in this matter at the request of Congressman Molinari of Staten Island.

It was generally agreed by ISC, NYDEC, MCHD and NJDEP/DEQ that the source of the cat - urine odors were either directly from Merck or from the LRSTP. Merck discharges approximately 1.34 MGD of wastewater to the LRSTP. The TBZ manufacturing process at Merck generates a low boiler waste which has been determined to be the source of the odors. According to the ISC and the MCHD the number of odor complaints have increased since Merck began to pretreat this waste at their facility and discharge to the LRSTP. Previously Merck had drummed the waste for disposal by Rollins in Texas. Spills often occurred of the low boiler waste and therefore Merck modified their waste handling system.

Complaint Handling and Verification

The protocol for handling the complaints was discussed. Apparently previously established protocols have not been followed. ISC and MCHD will in the future conduct joint inspections when possible and both will provide complaint investigation information to each other and the NJDEP/DEQ. If NYDEC verifies odors they will contact MCHD directly. It was the opinion of the NYDEC that there has been enough documentation which associates the cat - urine odors with Merck and the LRSTP. NJDEP/DEQ, however, claimed that they have not been provided with the documentation.

ATTACHMENT ~~1~~ 5-1

Merck's Discharge to DTW

Merck has applied for a NJPDES permit to discharge to the LRSTP. A draft permit has been prepared by the NJDEP office of Industrial Pretreatment. Industrial Pretreatment is awaiting additional information regarding a new manufacturing process at Merck before a final permit is issued. The permit is expected to be completed in about one month.

Recent samples have been taken by the LRSTP of Merck's discharge to the sanitary sewer and the LRSTP influent (analysis attached). Carbon disulfide and benzene were present in both Merck's discharge to the sanitary sewer system and in the LRSTP's influent. Carbon disulfide is the principle constituent of Merck's low boiler waste and is believed to be the cause of the cat - urine odors.

The draft NJPDES/SIU permit prohibits the spills of carbon disulfide which cause odor problems. There was a general concern that the language in the permit was written in such a manner as to prohibit spills but may be interpreted to allow the discharge of carbon disulfide from the pretreatment system (excerpts from permit attached). This office will contact the Office of Industrial Pretreatment to discuss the possibility of changing this language to restrict the discharge of carbon disulfide and to add a restriction on the discharge of benzene. Since the recently established USEPA pharmaceutical standards do not restrict the discharge of either carbon disulfide or benzene the inclusion of such restrictions may be difficult. A sound basis for the inclusion must be established since Merck is likely to request an adjudicatory hearing.

Enforcement Approach

NJDEP/DEQ has taken prior enforcement action against Merck in the form of an Administrative Order to cease nuisance odors. Whenever Merck's confirmed to be the source of an odor DEQ levies a \$2,500 fine against them. NYDEC was of the opinion that a \$2,500 was not a significant deterrent and that additional enforcement measures are necessary. Referral to the New Jersey Attorney Generals Office was one option discussed, however, not favored by NJDEP/DEQ. ISC indicated that it was planning on initiating enforcement action against the LRSTP for water pollution violations. NJDEP/DWR will pursue this matter through the NJPDES/SIU permit either through enforcement action when the permit is issued or through an adjudicatory hearing if Merck requests one. Additional sampling will be required to substantiate the analysis performed by the LRSTP. Both EPA and the ISC have offered assistance to the DWR if we should so request.

CAL TECHNOLOGIES INC.

ANALYTICAL LABORATORIES

(201) 725-6927

N.J. LAB. ID No. 18193

CLIFTON OFFICE
66 HUDSON STREET
CLIFTON, NEW JERSEY 07011

SOMERVILLE OFFICE
978 EVERGREEN DRIVE
SOMERVILLE, NEW JERSEY 08876

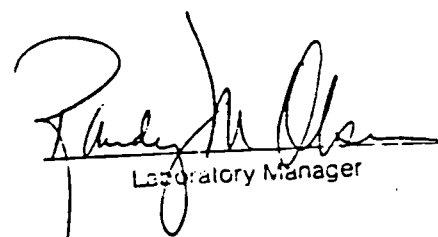
Ms. Sandra Grenci
Linden Roselle Sewerage Authority
5005 South Wood Avenue
P.O. Box 124
Linden, New Jersey 07036

DATE OF REPORT: 10-27-83
CAL TECH LAB NO: 83-818
DATE SAMPLE COLLECTED: 10-20-83
SAMPLE COLLECTED FROM: Merck Effluent

REPORT OF LABORATORY ANALYSES

<u>Parameter</u>	<u>Concentration, ug/l</u>
Carbon Disulfide	13,700.
Benzene	31,100.
Toluene	2,220.
Perchloroethylene	581.
Ethyl Benzene & Xylenes	232.
C ₃ Benzene Isomers	613.
Total Dichlorobenzenes	2,070.

Above analysis performed by GC/MS.


Laboratory Manager

CLIFTON OFFICE:
66 HUDSON STREET
CLIFTON, NEW JERSEY 07011

SOMERVILLE OFFICE
978 EVERGREEN DRIVE
SOMERVILLE, NEW JERSEY 08876

Linden-Roselle Sewerage Auth.
P.O. Box 124
5005 South Wood Avenue
Linden, New Jersey 07036

Ms. Sandra Grenci

DATE OF REPORT: 11-10-83

CAL TECH LAB NO: 83-850

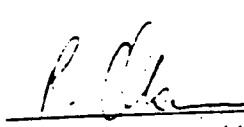
DATE SAMPLE COLLECTED: 10-27-83, 11

SAMPLE COLLECTED FROM: Merck Process
Effluent

REPORT OF LABORATORY ANALYSES

<u>Parameter</u>	<u>Concentration, $\mu\text{g}/\text{l}$</u>
Chloroethane	711.
Methylene Chloride	29,500.
Carbon Disulfide	27,600.
Propanoic Acid	1,480.
Chloroform	2,550.
Carbon Tetrachloride	208.
Benzene	13,600.
C ₅ H ₁₀ O Ketone	13,300.
Toluene	15,700.
Ethyl Benzene	96.
Total Xylenes	519.

Above analysis performed by GC/MS.


Laboratory Manager

ANALYTICAL LABORATORIES

(201) 725-6927

N.J. LAB. ID No. 18193

CLIFTON OFFICE.

66 HUDSON STREET
CLIFTON, NEW JERSEY 07011

SOMERVILLE OFFICE

978 EVERGREEN DRIVE
SOMERVILLE, NEW JERSEY 08876Ms. Sandra Greci
Linden Roselle Sewerage Authority
5005 South Wood Avenue
P.O. Box 124
Linden, New Jersey 07036

DATE OF REPORT: 10-27-83

CAL TECH LAB NO: 83-820

DATE SAMPLE COLLECTED: 10-22-83

SAMPLE COLLECTED FROM: Merck Process
Treatment Effluent (Collected in VialREPORT OF LABORATORY ANALYSESParameterConcentration, ug/lCarbon Disulfide
Benzene
Ethyl Benzenes & Xylenes
Total Dichlorobenzenes
Toluene

10,200.

26,000.

256.

1,710.

552.

Above analysis performed by GC/MS.



Laboratory Manager

ATTACHMENT ~~745~~ 745

ANALYTICAL LABORATORIES

(201) 725-6927

N.J. LAB. ID No. 18193

CLIFTON OFFICE

66 HUDSON STREET

CLIFTON, NEW JERSEY 07011

SOMERVILLE OFFICE

978 EVERGREEN DRIVE

SOMERVILLE, NEW JERSEY 08876

Linden-Roselle Sewerage Auth.
P.O. Box 124
5005 South Wood Avenue
Linden, New Jersey 07036

Ms. Sandra Grenci

DATE OF REPORT: 11-10-83

CAL TECH LAB NO: 83-846

DATE SAMPLE COLLECTED: 11-3-83, 10:30 AM

SAMPLE COLLECTED FROM: Merck Process
EffluentREPORT OF LABORATORY ANALYSESParameterConcentration, $\mu\text{g/l}$

Methylene Chloride	393.
Carbon Disulfide	360.
Benzene	18,200.
Toluene	2,030.
Ethyl Benzene	72.
Total Xylenes	309.

Above analysis performed by GC/MS.



Laboratory Manager

ATTACHMENT ~~J-6~~ J-6



MIDDLESEX COUNTY HEALTH DEPARTMENT

AIR POLLUTION CONTROL PROGRAM
280 HOBART STREET, ROOM 518
PERTH AMBOY, N.J. 08861
(201) 826-3100

LASZLO SZABO, M.P.H., M.P.A.
DIRECTOR

RICHARD J. HILLS
PROGRAM COORDINATOR

February 19, 1986

Mr. Allan T. Edwards
Chief
Bureau of Enforcement Services
N.J. Dept. of Environmental Protection
CN 027
Trenton, New Jersey 08625

Re: Linden-Roselle Sewerage Authority/Merck & Co.
"Cat Urine" Odor

Dear Allan:

Attached are copies of materials relevant to "cat urine" odor investigations which occurred during the period of December 12, 1985 - January 8, 1986. (This was the period of heaviest "cat urine" odor complaints from Staten Island). No reports have been generated since January 8, 1986, which I suspect is as a result of Merck's curtailment of discharge of TBZ/Low Boiler Wastes to LRSA.

The supplemental data included herewith, will assist in your edification of the case from the inception in May/June 1983, of discharging TBZ/Low Boiler to LRSA to present.

Should you wish to discuss these matters further, please call me.

Very truly yours,


RICHARD J. HILLS
PROGRAM COORDINATOR - AIR

RJH/ch
Attachments

cc: Andrew Bara

FI# 123, 124-85, 002-86

C# 1169, 1187, 1192-85,
001, 013, 017-86

ATTACHMENT ~~1~~ J-7

MEMO

NEW JERSEY STATE DEPARTMENT OF ENVIRONMENTAL PROTECTION

TO Peter T. Lynch, Chief, Metro Bureau of Regional Enforcement
FROM Patricia Cane through Stefan Sedlak DATE February 26, 1986
SUBJECT Merck & Company Presentation

On January 14, 1986 Merck & Company gave a presentation on their assessment of the odor problem on Staten Island. Present at the meeting were the following:

Don Deieso, NJDEP/DEQ
Andy Bara, NJDEP/DEQ
John Walsh, NJDEP/DEQ
Patricia Cane, NJDEP/DWR
Richard Hill, MCHD
Allen Lauritzen, MCHD
Sandra Greci, LRSA
Jerry Fredericks, LRSA
R. Tomaszewski, Esq., LRSA
Byron LaRue, Merck
Art Perri, Merck
Bruce Wallington, Merck
David Kirk, Merck
J.W. Keating, Merck
Richard Trabert, Merck
Dorothy Bower, Merck

Mr. LaRue opened the session with a prepared statement emphasizing Merck's continuing efforts to control odor emissions and determine the source of odors on Staten Island. Thus far Merck has invested \$5 million dollars on odor abatement. Merck is convinced that neither they nor LRSA are responsible for the odors which reach Staten Island. Furthermore, the company believes that complainants are erroneously classifying the odors as "cat urine" which results in Merck being blamed. They believe the odor is of a fishy-amine nature and emanates from a number of other sources.

Ms. Bower, Mr. Puchalski and Mr. Wallington each gave portions of a presentation aimed at exonerating Merck. Merck and LRSA were first blamed for the odors in a DEC study covering the period 1979 to 1982. However, Merck's

ATTACHMENT ~~1-8~~ J-8

attempts to replicate the study produced inconclusive results as to Merck's culpability.

A study conducted by ISC was also analyzed by Merck. Nine months worth of data, 31 incidents, were plotted indicating that complaints were received by ISC during times that the TBZ process was shut down. Only 2 of 31 incidents occurred in a wind pattern pointing to LRSA as the source. A vector analysis of select pairs of complaints designated the Staten Island Fresh Kills landfill as the source.

Another study done by Roy Weston for USEPA drew no conclusions since odor incidents did not occur during the study period. A mobile tandem mass spectrometer was utilized to analyze air samples in the field during this study.

In September 1984 the NEIC group out of EPA's Denver office conducted a study of the industrial effluents discharge to the LRSA collection system. They found the waste streams as well as LRSA to be odorous.

Merck has conducted its own study using a bench-scale replica of LRSA and computer extrapolations. Based upon their theory, no odors would be detectable on Staten Island. A 6 - week study showed all but 2 of 31 incidents were of a fishy-amine odor not originating at LRSA or Merck. These latter two studies were conducted in 1984.

More recently, Roy Weston again experimented with the mobile mass spectrometer unit using a tracer gas. On two occasions, a fishy-amine odor was present, once with westerly and once with easterly winds. Merck's TBZ process was

shut down during this study period. Weston found the tracer gas where they did not find any odor and concluded that LRSA was not the source. They found acetamide, methoxyamine and nitromethane in the odorous air.

On January 8, 1986 Merck ceased the discharge from the TBZ process. Since cat urine odor complaints were made after that date, Merck believes they were never at fault. On January 7, 1986 Merck personnel rented a boat and motored down the Arthur Kill. They observed a laborer at DuPont working on a piece of pipe rack equipment near shore which was emitting a thick, blue, smoke with an ammoniacal-fishy odor. A Merck employee on Staten Island was able to detect the odor downwind of DuPont.

Since Merck must alternatively dispose of the TBZ waste, they presented Dr. Deieso with a completed application and a check for approval to ship off-site. Dr. Deieso withheld comments on the presentation.

E36:G25

WFO
J. Sidlak**MEMO**

NEW JERSEY STATE DEPARTMENT OF ENVIRONMENTAL PROTECTION

TO Steve Kuhrtz

FROM Thomas A. Pluta DATE November 21, 1983

SUBJECT Staten Island Air Quality Study

On November 18th, Ernie Mancini and I met with those on the attached attendance list to discuss the interstate air pollution complaint protocol and the compliance status of Merck as related to the "cat urine" odor problem. These two issues, significant in themselves, are part of a broader emerging interstate problem related to the role and working relationship of state, local, interstate and federal agencies in the region; and differing program priorities among these agencies. The interstate air quality issue which was primarily a NJ/NY issue, now includes EPA as a result of the interest of Congressman Guy Molinari of Staten Island who has assigned a staff member to look into the problem.

Interstate Complaint Protocol Problems

1. Verification of complaints received by ISC needs to be improved by more careful odor characterization; joint ISC/MCHD follow up inspections where feasible; and submission of ISC complaint investigation information to MCHD. ISC has equipped an inspector with a beeper to ensure MCHD contact is made during field investigations and agreed to provide complaint investigation information to MCHD.
2. ISC indicated it is the only NY city based agency responding to air pollution complaints at the written request of the city. NYDEC will contact NYC regarding the city wide complaint response network and determine whether inspections can be made by NYC inspectors.
3. NYDEC inspectors will directly contact MCHD in situations where DEC inspectors detect and verify odor problems which may originate in NJ.

Enforcement Priorities

There was a spirited discussion regarding the degree of the interstate odor problem and the nature and extent of enforcement action taken and/or contemplated by DEP, DEC and ISC in both air and water pollution, especially as related to Merck and the Linden Roselle Sewage Treatment Authority (LRSTA).

Complaints related to the "cat urine" odor problem associated with the TBZ manufacturing process at Merck have apparently increased since the installation of the low boiler neutralization controls which redirected the waste flow to the on-site pretreatment facility which discharges to LRSTA. The cat urine odors have now been traced to the LRSTA. Merck is still the direct source of odors related to process washout and malfunction or spill discharges which are not treated by the on-site pretreatment facility.

ISC indicated it is exploring enforcement action against LRSTA for water pollution discharges. DEP (DWR) has prepared a draft NJPDES permit for Merck setting a zero discharge limit for carbon disulfide (CS₂). Contaminated CS₂ waste discharges are the probable source of cat urine odors.

Since the air and water problems at Merck and LRSTA are directly related, a joint enforcement approach was discussed and included the following:

1. DEP/DEQ will follow up current enforcement actions related to Merck to determine whether definitive odor control measures will be taken to properly treat TBZ washout and/or spill discharges; and continue to take enforcement action based on verified odor complaints.
2. DEP/DWR will review and redraft, as necessary, the NJPDES permit language regarding CS₂ discharges; and work with ISC, LRSTA and EPA concerning sampling and analysis of Merck wastewater discharges.
3. NYDEC will await outcome of the Merck response to DEP/DEQ enforcement action to determine whether it will refer the case to the NY Attorney General for enforcement.

Congressional Inquiry

EPA representatives will be meeting in a few weeks with staff members from NY Congressman Molinari's office to discuss the interstate air quality issue.

Congressman Molinari is interested in determining from EPA whether NYDEC, NYDEP and ISC are working to abate odors complained of by Staten Island residents and if not what EPA can do about it. I agreed to provide EPA with a brief summary of DEP enforcement actions related to the NJ sources named in the Staten Island study.



Log # A90924 A50115

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF ENVIRONMENTAL QUALITY
JOHN FITCH PLAZA, CN027 TRENTON, N.J. 08625

IN THE MATTER OF
MERCK & COMPANY, INC.

ADMINISTRATIVE
CONSENT ORDER

The following FINDINGS are made and ORDER is issued pursuant to the authority vested in the Commissioner of the New Jersey Department of Environmental Protection and duly delegated to the Assistant Director, Enforcement Element, Division of Environmental Quality, pursuant to N.J.S.A. 13:1B-5, N.J.S.A. 13:1D-1 et seq., and the Air Pollution Control Act of 1954, N.J.S.A. 26:2C-1 et seq.

FINDINGS

1. Merck & Company, Inc. ("Merck") owns and operates a facility (ID#40009) (the "Facility") located at 126 East Lincoln Avenue, Block 2, Lot 1; Block 5, Lot 1A; Block 23, Lot 1; City of Rahway, County of Union, State of New Jersey.
2. An investigation conducted on January 3, 1986 by the New Jersey Department of Environmental Protection (the "Department") disclosed the alleged release on such date of air contaminants from Merck's TBZ process at the Facility in such quantity or concentration as to interfere with the enjoyment of life or property, in violation of N.J.A.C. 7:27-5.2(a). Subsequently, on January 8, 1986, the Department issued to Merck Administrative Order and Notice of Civil Administrative Penalty Assessment #A860078 CDS, requiring Merck to cease said violation immediately, and assessing a penalty of \$10,000. Thereafter, Merck denied the material allegations and requested an administrative hearing with respect to the issuance of such Administrative Order.
3. A conference between representatives of the Department and Merck was conducted on February 20, 1986, in an effort to mutually discuss and resolve the matter of alleged and/or potential violations of N.J.A.C. 7:27-5.1 et seq.
4. Having successfully negotiated an Agreement, the Department and Merck enter into this Administrative Consent Order in order to avoid the expense and inconvenience of an adjudicatory proceeding. This Administrative Consent Order is entered without trial, hearing, or adjudication of fact,

fault or liability of Merck. Merck does not admit or agree to the statements contained in the Findings and is not bound thereby, except that Merck agrees not to contest the authority or jurisdiction of the Department to issue this Administrative Consent Order and to undertake any proceedings to enforce the terms and conditions of this Administrative Consent Order. No part of this Administrative Consent Order shall constitute or be interpreted or construed as an admission by Merck of any liability under any federal, state or local law, or that Merck has violated or is in violation of any laws, rules or regulations. No part of this Administrative Consent Order shall be admissible as evidence in any court or administrative proceeding, except as evidence for purposes of enforcement of this Administrative Consent Order, or as agreed to by Merck. This Administrative Consent Order shall not be deemed evidence of any offense for purposes of N.J.S.A. 26:2C-19 and/or N.J.S.A. 2A:58-5.

ORDER

NOW, THEREFORE, IT IS HEREBY ORDERED AND AGREED THAT:

5. MERCK & COMPANY, INC., its principals, agents employees, successors and assigns are subject to and must comply with N.J.A.C. 7:27-5.1 et seq.
6. A. Based upon all the above, and pursuant to N.J.S.A. 26:2C-19, within ten (10) calendar days of the receipt of this Administrative Consent Order, Merck shall pay to the Department the sum of NINE THOUSAND (\$9000) DOLLARS. Payment of such sum, together with the signing of this Administrative Consent Order, shall be in full settlement and satisfaction of Administrative Order and Notice of Civil Administrative Penalty Assessment #A860078 CDS, and of any other enforcement action which could have been taken against Merck under the Air Pollution Control Act for the alleged incident of January 3, 1986.

B. Merck hereby withdraws its request for an administrative hearing with respect to Administrative Order and Notice of Civil Administrative Penalty Assessment #A860078.

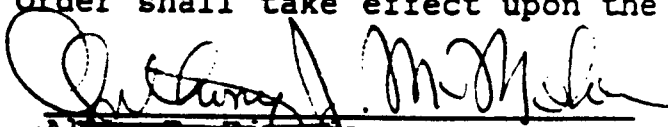
RESERVATION OF RIGHTS

7. MERCK & COMPANY, INC. hereby consents to and agrees to comply with all terms and provisions of this Administrative Consent Order, which shall be fully enforceable in the Superior Court of New Jersey upon the filing of a summary action for compliance pursuant to N.J.S.A. 26:2C-1 et seq., and also may be enforced in the same fashion as an Administrative Order issued by the Department pursuant to this same statutory authority. Merck hereby waives the right to an administrative hearing pertaining to this Administrative


Consent Order as provided in N.J.S.A. 26:2C-14, or as otherwise provided.

8. Compliance with the terms of this Administrative Consent Order shall not release Merck of any further obligation to comply with the requirements of N.J.S.A. 26:2C-1 et seq., N.J.A.C. 7:27-1.1 et seq. and any other applicable statute, code, rule, regulation or order.
9. The provisions of this Administrative Consent Order shall be binding on Merck, its principals, agents, employees, successors, assigns, tenants and any trustee in bankruptcy or receiver appointed pursuant to a proceeding in law or equity.
10. No obligations imposed by this Administrative Consent Order, with the exception of Paragraph 6 (A), above, are intended to constitute a debt, damage claim, penalty or other civil action which should be limited or discharged in a bankruptcy proceeding. All obligations imposed by this Order shall constitute continuing regulatory obligations imposed pursuant to the police powers of the State of New Jersey, intended to protect the public health, safety and welfare.
11. This Administrative Consent Order shall not preclude the Department from taking whatever action it deems appropriate to enforce the air pollution control laws of the State of New Jersey, and to protect the public health, welfare and the environment.
12. This Administrative Consent Order shall take effect upon the signature of both parties.

DATED: 8/25/86


Allan T. Edwards,
Acting Assistant Director
Enforcement Element

DATED: 7/14/86

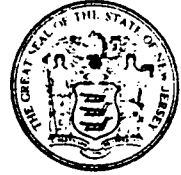

FOR MERCK & CO., INC.

Arthur L. Perri
NAME (PRINT OR TYPE)

Executive Director, Rahway Site Operations
TITLE



NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF ENVIRONMENTAL QUALITY
CN 027, TRENTON, NJ 08625



IN THE MATTER OF
MERCK & COMPANY, INCORPORATED:
P. O. BOX 2000
RAHWAY, N.J. 07065
LOG #A860078 CDS

ADMINISTRATIVE ORDER AND

NOTICE OF CIVIL ADMINISTRATIVE

PENALTY ASSESSMENT

This ORDER and NOTICE are issued pursuant to the authority vested in the Commissioner of the New Jersey Department of Environmental Protection (the "Department") by N.J.S.A. 13:1D-1 et seq., and the Air Pollution Control Act, N.J.S.A. 26:2C-1 et seq. (the "Act"), and duly delegated to the Assistant Director for Enforcement of the Division of Environmental Quality pursuant to N.J.S.A. 13:1B-4.

FINDINGS

1. As the result of an investigation conducted on January 3, 1986, the Department has determined that at your facility located at 126 East Lincoln Avenue, City of Rahway, Lot(s) 1A, 1 & 1, Block(s) 5, 2 & 23, County of Union, State of New Jersey, (ID #40009), you did cause, suffer, allow or permit odors from the TBZ process effluent to be emitted into the outdoor atmosphere in quantities which resulted in air pollution, in violation of N.J.A.C. 7:27-5.2(a).

ORDER

2. NOW, THEREFORE, IT IS HEREBY ORDERED THAT you immediately cease emitting, into the outdoor atmosphere substances in quantities which shall result in air pollution.
3. Based upon the above FINDINGS, and a review of the entire matter, the Department hereby assesses a Civil Administrative Penalty against you in the amount of \$10,000.00. Payment must be submitted to the Department within twenty (20) calendar days of receipt of this Order and Notice, unless you request a hearing in accordance with the provisions of Paragraph 4 below. Payment must be made to the Department at the address listed in Paragraph B of Attachment 1.



NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF ENVIRONMENTAL QUALITY
CN 027, TRENTON, NJ 08625



IN THE MATTER OF
MERCK & COMPANY
POST OFFICE BOX 2000
RAHWAY, N.J. 07065
LOG #A860104 CDS

ADMINISTRATIVE ORDER AND

NOTICE OF CIVIL ADMINISTRATIVE

PENALTY ASSESSMENT

This ORDER and NOTICE are issued pursuant to the authority vested in the Commissioner of the New Jersey Department of Environmental Protection (the "Department") by N.J.S.A. 13:1D-1 et seq., and the Air Pollution Control Act, N.J.S.A. 26:2C-1 et seq. (the "Act"), and duly delegated to the Assistant Director for Enforcement of the Division of Environmental Quality pursuant to N.J.S.A. 13:1B-4.

FINDINGS

1. As the result of an investigation conducted on August 15, 1985, the Department has determined that at your facility located at 126 East Lincoln Avenue, City of Rahway, Lot(s) 1A,1.1, Block(s) 5,2,23, County of Union, State of New Jersey, (ID #40009) you used the equipment and/or control apparatus associated with Permit(s) to Construct, Install or Alter Control Apparatus or Equipment and Certificate(s) to Operate Control Apparatus or Equipment (P & CT(s) see below) without all components connected or attached to or serving the equipment and/or control apparatus, functioning properly and in use, in accordance with the Permit(s) and Certificate(s), in violation of N.J.A.C. 7:27-8.3(e)2 by

P & CT-70438 - Permitting the release of 1,425 gallons of a benzene product from storage tank #6066.

ORDER

2. NOW, THEREFORE, IT IS HEREBY ORDERED THAT on or before February 11, 1986, you cease operation of the equipment listed in Paragraph 1 above or operate said equipment in accordance with the above Permit(s) and Certificate(s).

Based upon the above FINDINGS, and a review of the entire matter, the Department hereby assesses a Civil Administrative Penalty against you in the amount of \$400.00. Payment must be submitted to the Department within twenty (20) calendar days of receipt of this Order and Notice unless you request a hearing in accordance with the provisions of Paragraph 4 below. Payment must be made to the Department at the address listed in Paragraph 8 of Attachment I.



NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF ENVIRONMENTAL QUALITY
CN 027, TRENTON, NJ 08625



NOTICE OF PROSECUTION

TO: Merck & Company, Inc.
Post Office Box 2000
Rahway, New Jersey 07065
Tom Puchalski, Mgr. Env. Control

Contact/Phone: 201-574-5361

Violation Occurred On
Premises Known As:

126 East Lincoln Avenue, Rahway,
Lots 1A & 1, Blocks 5, 2 & 23,
Union County, New Jersey,
ID# 40009

The New Jersey Department of Environmental Protection has determined by investigation(s) made pursuant to the provisions of N.J.S.A. 26:2C-1 that on December 14, 1984, you did violate the New Jersey Administrative Code, Air Pollution Control, Title 7, Chapter 27, Subchapter and Section(s) as follows:

8.3(e)2 - The investigation disclosed the use of the monochloroactone scrubber column with a malfunctioning water flow transmitter resulting in a release of monochloroacetone to the outdoor atmosphere, therefore not functioning in accordance with Permit (P-46924) and Certificate (CT-46924).

YOU ARE TO CEASE VIOLATION of said Subchapter and Section(s) on the premises owned, leased, operated or maintained by you IMMEDIATELY.

PENALTY ASSESSED: \$2,500.00

SETTLEMENT: The above penalty must be paid within 30 days of the date of this Notice of Prosecution. To settle this claim, make payment by money order or check drawn to the order of the New Jersey Department of Environmental Protection.

If you fail to settle this claim within the 30 day settlement period, the matter will be referred to the Office of the Attorney General with the recommendation to seek injunctive relief and maximum penalties for each violation as provided by law.

Should you have any questions, contact Mr. Marvin C. Makier, Supervisor, Administrative Actions, (609)292-1708.

Refer to Log #A850095 CDS

Dated: March 28, 1985


Ernest A. Mancini, Assistant Director
Enforcement Element

PROGRAM: Middlesex County Health Dept.
Metropolitan Regional Office

CERTIFIED MAIL



NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF ENVIRONMENTAL QUALITY
CN 027, TRENTON, NJ 08625



NOTICE OF PROSECUTION

TO: Merck & Company, Inc.
Post Office Box 2000
Rahway, New Jersey 07065
Tom Puchalski, Mgr. Env. Control

Contact/Phone: 201-574-5361
Violation Occurred On
Premises Known As:
126 East Lincoln Avenue, Rahway,
Lots 1A & 1, Blocks 5, 2 & 23.
Union County, New Jersey,
ID# 40009

The New Jersey Department of Environmental Protection has determined by investigation(s) made pursuant to the provisions of N.J.S.A. 26:2C-1 that on November 29, 1984, you did violate the New Jersey Administrative Code, Air Pollution Control, Title 7, Chapter 27, Subchapter and Section(s) as follows:

5.2(a) - The investigation disclosed that you did cause, suffer, allow or permit a release of monochloroacetone to be emitted to the outdoor atmosphere in such quantities as to interfere with the enjoyment of life and property.

YOU ARE TO CEASE VIOLATION of said Subchapter and Section(s) on the premises owned, leased, operated or maintained by you IMMEDIATELY.

PENALTY ASSESSED: \$2,500.00

SETTLEMENT: The above penalty must be paid within 30 days of the date of this Notice of Prosecution. To settle this claim, make payment by money order or check drawn to the order of the New Jersey Department of Environmental Protection.

If you fail to settle this claim within the 30 day settlement period, the matter will be referred to the Office of the Attorney General with the recommendation to seek injunctive relief and maximum penalties for each violation as provided by law.

Should you have any questions, contact Mr. Marvin C. Harris,
Supervisor, Administrative Actions, (609)292-1708.

Refer to Log #22795 CDE

Dated: December 21, 1984


Ernest A. Mancini, Assistant Director
Enforcement Element

PROGRAM: Central Regional Office

CERTIFIED MAIL

ATTACHMENT ~~REF~~ L-4



NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF ENVIRONMENTAL QUALITY
CN 027, TRENTON, NJ 08625



NOTICE OF PROSECUTION

TO: Merck & Company, Inc.
Post Office Box 2000
Rahway, New Jersey 07065
Tom Puchalski, Mgr. Env. Control

Contact/Phone: (201) 574-5561
Violation Occurred On
Premises Known As:

126 East Lincoln Avenue, Rahway,
Lots 1A & 1, Blocks 5, 2 & 23,
Union County, New Jersey,
ID# 40009

The New Jersey Department of Environmental Protection has determined by investigation(s) made pursuant to the provisions of N.J.S.A. 26:2C-1 that on November 29, 1984, you did violate the New Jersey Administrative Code, Air Pollution Control, Title 7, Chapter 27, Subchapter and Section(s) as follows:

8.3(e)2 - The investigation disclosed the use of process equipment with the failure of a temperature transmitter, which caused an automatic valve to close off cooling water to a condenser, which caused the release of monochloroacetone to the atmosphere, therefore not functioning in accordance with Permit (P-046924) and Certificate (CT-046924).

YOU ARE TO CEASE VIOLATION of said Subchapter and Section(s) on the premises owned, leased, operated or maintained by you IMMEDIATELY.

PENALTY ASSESSED: \$2,500.00

SETTLEMENT: The above penalty must be paid within 30 days of the date of this Notice of Prosecution. To settle this claim, make payment by money order or check drawn to the order of the New Jersey Department of Environmental Protection.

If you fail to settle this claim within the 30 day settlement period, the matter will be referred to the Office of the Attorney General with the recommendation to seek injunctive relief and maximum penalties for each violation as provided by law.

Should you have any questions, contact Mr. Marvin J. Bakler,
Supervisor, Administrative Actions, (609) 292-1708.

Refer to Log #22784

Dated: December 21, 1984

Ernest A. Mancini
Ernest A. Mancini, Assistant Director
Enforcement Element

PROGRAM: Central Regional Office
Middlesex County Health Dept.

CERTIFIED MAIL

ATTACHMENT 2-5



NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF ENVIRONMENTAL QUALITY
-CN 027, TRENTON, NJ 08625



NOTICE OF PROSECUTION

TO: Merck & Company, Inc.
P. O. Box 2000
Rahway, New Jersey 07065
Tom Puchalaki, Mgr. Env. Control

Contact/Phone: 201-574-5361

Violation Occurred On

Premises Known As:

126 East Lincoln Avenue, Rahway,
Lots 1A & 1, Blocks 5, 2 & 23,
Union County, New Jersey,
EID #40009

The New Jersey Department of Environmental Protection has determined by investigation(s) made pursuant to the provisions of N.J.S.A. 26:2C-1 that on August 19, 1983 you did violate the New Jersey Administrative Code, Air Pollution Control, Title 7, Chapter 27, Subchapter and Section(s) as follows:

5.2(a) - The investigation disclosed you did cause, suffer, allow or permit a cat urine type odor to be emitted into the outdoor atmosphere in such quantities as to interfere with the enjoyment of life.

YOU ARE TO CEASE VIOLATION of said Subchapter and Section(s) on the premises owned, leased, operated or maintained by you IMMEDIATELY.

PENALTY ASSESSED: \$2,500.00

SETTLEMENT: The above penalty must be paid within 30 days of the date of this Notice of Prosecution. To settle this claim, make payment by money order or check drawn to the order of the New Jersey Department of Environmental Protection.

If you fail to settle this claim within the 30-day settlement period, the matter will be referred to the Office of the Attorney General with the recommendation to seek injunctive relief and maximum penalties for each violation as provided by law.

Should you have any questions, contact Mr. David C. Volz,

Supervisor, Administrative Actions, (609) 292-1100.

Refer to Log #21149

Dated: September 22, 1983

Thomas A. Pluta
Thomas A. Pluta, Assistant Director
Enforcement Branch

Program: Metro Field Office

CERTIFIED MAIL

ATTACHMENT

L-6

206

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION II
26 Federal Plaza
New York, New York 10007

RECEIVED

OCT 25 1977

----- x
In the Matter of :

Merck & Company, Inc. :

NPDES Permit Number: NJ 0002348 :

Proceedings under Section 309(a)(3) :
and (a)(4), Federal Water Pollution :
Control Act Amendments of 1972 :
(33 U.S.C. §1319) :
----- x

State of New Jersey
Department of Environmental Protection
Division Water Resources
FINDINGS OF VIOLATION
AND
ORDER TO SHOW CAUSE

EPA Number NPDES - II-77-102

The following FINDINGS are made and ORDER issued pursuant to the authority vested in the Administrator of the Environmental Protection Agency (hereinafter EPA) by Section 309 of the Federal Water Pollution Control Act Amendments of 1972 (33 U.S.C. §1319) (hereinafter "the Act") and by him duly delegated to the Regional Administrator of Region II which authority has been duly re-delegated to the (undersigned) Director, Enforcement Division, Region II.

FINDINGS:

1. On September 23, 1975, the Regional Administrator of Region II, EPA, pursuant to authority delegated to him by the Administrator, issued a National Pollutant Discharge Elimination System (NPDES) permit under Section 402 of the Act, (33 U.S.C. §1342) to Merck & Company, Inc. (hereinafter Merck), for the discharge of pollutants from its facility located at Rahway, New Jersey to Kings Creek and the Rahway municipal storm sewer. By its terms, this permit (Number NJ 0002348) became effective on October 31, 1975.

2.(a) By letter of September 6, 1974, Merck amended its application for the above-referenced permit by reporting the elimination of Discharges 001 and 002. These discharges were asserted to be inoperative except at times of heavy rainfall or operation of the deluge system in an emergency caused by fire. The permit was issued effective October 31, 1975 permitting discharges solely from Discharges 003, 004 and 005.

(b) During an inspection conducted by personnel of the New Jersey Department of Environmental Protection at the referenced facility on February 2, 1977 when the weather was fair, dry and cold, contaminated discharges were observed and sampled from two unpermitted outfalls: (1) a twenty-four inch pipe believed to be the allegedly discontinued outfall 001; (2) an eighteen inch pipe that was not made reference to in the permit application. The discharge from the former outfall was characterized by a concentration of 1138 mg/l

ATTACHMENT M-1

Total Suspended Solids, 890 mg/l COD, 141 mg/l BOD₅ and a visible oil sheen. The discharge from the latter outfall was characterized by a concentration of 884 mg/l Total Suspended Solids, 271 mg/l COD and a pH of 2.0 standard units. Merck was advised of the operation of these two unpermitted discharges during the inspection of February 2, 1977.

(c) On October 13, 1977, personnel from the New Jersey Department of Environmental Protection again visited the Merck facility and observed that contaminated discharges continued to flow from the two above-referenced outfalls.

(d) It is, therefore, found that Merck has been, and continues to be, in violation of Section 301 of the Act (33 U.S.C. §1311) in that it continues to discharge from two outfalls which are not permitted by the referenced permit.

3.(a) Operations at the referenced facility have been characterized by numerous serious spill events, to wit:

- (i) May 12, 1975 - spill of ammonia and Thiobendazole (TBZ);
- (ii) June 22-23, 1976 - spill of cobalt catalyst observed during inspection by EPA, Surveillance and Analysis Division;
- (iii) July 9, 1976 - spill of cobalt catalyst;
- (iv) October 8, 1976 - sewer line blockage resulted in backup of raw waste load to former outfall 001;
- (v) October 19, 1976 - spill of 3,000 gallons of Sodium Thiocyanate through outfall 003;
- (vi) November 23, 1976 - break in ammonia line resulting in discharge of ammonia and ortho-dichlorobenzene observed during inspection by New Jersey Department of Environmental Protection;
- (vii) January 31, 1977 - spill of ortho-dichlorobenzene and hydraulic fluid; and
- (viii) February 8, 1977 - PCB emergency due to transformer overload.

4.(a) By the terms of Condition 1.A.2.a. on Page 3.a. of its permit, Merck was required to limit the discharge of Total Suspended Solids from outfall 003 to 9 kg/day as a daily average and 18 kg/day as a daily maximum.

(b) In its Discharge Monitoring Report submitted on August 24, 1977, Merck reported a discharge of 22 kg/day as a daily average and 68 kg/day as a daily maximum and attributed this violation to construction activity.

(c) It is, therefore, found that Merck has violated Condition 1.A.2.a. of its permit and Section 301 of the Act (33 U.S.C. §1311) in that it discharged Total Suspended Solids from outfall 003 in excess of that permitted by the terms of said Condition.

86-06 1-08m

20-13-06



MERCK CHEMICAL MANUFACTURING DIVISION
MERCK & CO., INC.
P.O. BOX 2000, RAHWAY, NEW JERSEY 07065-0908
(201) 574-4000

June 13, 1986

State of New Jersey
Department of Environmental Protection
Director
Division of Environmental Quality
CN027
Trenton, NJ 08625

Dear Sir or Madam:

This is written confirmation of the environmental incident which occurred on June 11, 1986 at the ~~Merck & Co., Inc. Rahway~~ facility. Mrs. Terese Jones, Site Environmental Engineer, reported the incident to the NJDEP "Hotline" at 2:40 p.m. on Wednesday afternoon.

Summary of Incident

Date: Wednesday, June 11, 1986

Time: 2:10 p.m.

Location: East of Building 82

Material: Less than 2 gallons carbon disulfide spilled onto gravel area.

Cause: Pinhole leak in charge line from railroad tank car to carbon disulfide tank.

Immediate Corrective Action:

1. Ceasation of transfer operation by tank car pumpman.
2. Excavation of contaminated gravel and dirt from under leaking line. Material will be tested and sent to a permitted hazardous waste facility for disposal.

Agencies Contacted by Merck:

1. NJDEP "Hotline"
2. Middlesex County Department of Health
- Mr. Lauritsen
3. Linden Fire Department - for assistance in an event of a fire.


Agencies Which Contacted
Merck for Information:

1. Middlesex County Department of Health
- Helene Mykula
2. State Police, Office of Emergency Management
- Sgt. McCarty
3. NJDEP Emergency Response Office
- Mike Thompson
4. NJDEP, Division of Waste Management
- David Beeman

Odors were present only in the immediate area of the leak and were undetectable at the perimeter of the Merck property. There were no injuries or fire as a result of the leak.

Should you have any questions concerning the submission of this report, please call me at (201) 574-7929.

Sincerely,



Terese Jones
Site Environmental Engineer

/ls
0212L

cc: Middlesex County Health Department
Air Pollution Control
280 Hobart Street
Perth Amboy, NJ 08861

New Jersey State Police
P.O. Box 7068
West Trenton, NJ 08625
Attention Sgt. McCarty

~~Mr. David Beeman~~
Division of Waste Management
2 Babcock Place
West Orange, NJ 07050

20-13-06

Handwritten:
85-8-9-1C
20/13-N1

U.S. ENVIRONMENTAL PROTECTION AGENCY
POLLUTION AGENCY

DATE: August 12, 1985

Region II
Response and Prevention Branch
Edison, New Jersey 08837

TO: C. Daggett, EPA
W. Librizzi, EPA
F. Rubel, EPA
J. Marshall, EPA
ERD, EPA Washington, D.C.
(E-Mail)
NRC
J. Berkowitz, NJDEP
J. Rogalski, NJDEP
TAT

(201) 321-6670 - Commercial
(201) 548-8730 - 24 Hour Emergency
340-6670 - FTS

POLREP NO.: One (1) and Final
INCIDENT NAME: Merck & Co.
SITE/SPILL NO.: 779-85
POLLUTANT: Sulfuric Acid
CLASSIFICATION: Minor
SOURCE: Leaking Underground Storage Tank
LOCATION: Rahway, New Jersey
AMOUNT: 1,200 Gallons
WATER BODY: Kings Creek

1. SITUATION:

A. On August 9, 1985, EPA was notified of underground storage tank leaking sulfuric acid by Merck via the National Response Center.

2. ACTION TAKEN:

A. At 1130 an EPA Response Team arrived at the site and toured the area where the incident had occurred.

B. EPA was informed by Merck that 1,200 gallons of 98% sulfuric acid had leaked from a partially buried 15,000 gallon storage tank. (The upper portion of the tank was surrounded by a concrete wall and covered with gravel.)

C. Plant employees acted immediately upon discovery by blocking a nearby storm drain leading to Kings Creek and neutralizing some pooled acid with sodium carbonate.

D. pH readings at the storm sewer discharge to Kings Creek were being monitored every 15 minutes and no evidence of acid reaching the creek was reported.

E. Merck was arranging to empty the sulfuric acid tank while EPA was on site. They informed EPA that they were also planning to empty the adjacent toluene tank to prevent any sulfuric acid from reacting with the tank of toluene.

3. FUTURE PLANS AND RECOMMENDATIONS:

A. Merck is taking this tank out of service. Plans to this end were already underway prior to this leak.

B. EPA plans no further action at this site.

CASE CLOSED X
(TAT)

CASE PENDING _____

SUBMITTED BY _____

Tom Kady, OSC
Response and Prevention Branch

8/12/85

M E M O R A N D U M

TO: Merck File

FROM: E. Gaven, HSMA IV,
Bureau of Site Assessment

Subject: Additional Information on Underground Tanks

On November 7, 1986, the writer spoke with Terese Jones, Environmental Control Superintendent at Merck, regarding the five former underground storage tank areas which are identified in the RCRA Facility Assessment, as follows:

1. Tanks 852 and 853
2. Tank 10M
3. Tanks 103 and 104
4. Building 73 tank farm
5. Building 69 tank farm

According to Terese Jones, closure of all of the above areas, except for the Building 69 tank farm, was approved by NJDEP/DHWM/BHWE after closure requirements were certified by IT Corporation (also see Attachment I). The tanks in these areas were removed from the ground at the end of 1985 and beginning of 1986. No NJDEP personnel were present during tank removal in any of the above areas. The building 69 tank farm was removed in 1977; it failed a hydrostatic test and soil from the excavation was shipped off-site for disposal. Also, a water line was ruptured during the excavation and the area filled with water. The only area where visible contamination of soil was noticed during tank removal was in the area of Tanks 103 and 104. Soil samples were taken by Merck and results indicated the presence of benzene, chlorobenzene, ethyl benzene, chloroform, orthodichlorobenzene, toluene, PCE, TCE, and fuel oil. The concentrations of the contaminants ranged from 54 to 3960 ppm. Approximately 100 cubic yards of soil was shipped off-site during disposal.

HS216:kdp



CITY OF RAHWAY, NEW JERSEY
DIVISION OF WATER

SUPERINTENDENT'S OFFICE

Water Treatment Plant
1045 Westfield Ave.



THOMAS K. SCHIMMEL

Superintendent of Water

GEORGE HULNIK

Ass't. Water Superintendent and Engineer

N.J.D.E.P. **ASSESSMENT**
Bureau of Site ~~Augmentation~~
65 Prospect Street
Trenton, N.J. 08618

Attn: Ed Gaven

11-19-86

Dear Mr. Gaven:

To the best of our knowledge the following addresses use a
personnal well for their domestic water supply.

1343 Madison Avenue
864 Crescent Drive
89 Dukes Rd.
141 Dukes Rd.
675 Harrison Street

All the above properties are in the City of Rahway.

If you need any further information please contact this office.

Very truly yours,

Thomas K. Schimmel
Water Superintendent

TKS/dr

ATTACHMENT ~~7-9-1~~ 9-1

I. Water Well Records

<u>Location</u>	<u>Owner</u>	<u>Year Drilled</u>	<u>Screen Setting or Depth of Casing</u>	<u>Total Depth</u>	<u>g/m Yield</u>	<u>Formation</u>
26-31-132	Hyatt Roller Bearing Div.			501	500	Trb
26-31-237	Tingley-Reliance Rubber Co.			122	120	"
26-31-239	Hatfield Wire & Cable Co.	1959	52	350	323	"
26-31-243	Rahway, City of	1953	21.75	57	355	Q
26-31-266	Quinn & Boden	1966	35	35	23	Trb
26-31-268	"			357	150	"
26-31-274	Rahway, City of			301	12	"
26-31-294	Rahway Theater			349	100	"
26-31-315	Linden Ice Co.	1959	40	550	70	"
26-31-317	General Gum Products	1953	39'9"	316	100	"
26-31-338	Winews, C.H. & John			200	750	"
26-31-342	Layne, New York Co.	1955	36	310	30	"
26-31-364	Lampert Dairy Farms Inc.	1967	39	290	17	"
26-31-465	Middlesex Water Co.	1964	32'8"	505	495	"
26-31-533	Maclac Co.			151	91	"
26-31-576	Costa's Ice Cream Co.	1961	40	359	300	"
26-31-594	Security Steel Equip. Inc.	1957	26	614	34	"
26-31-861	Sabot National Grocery	1956	24	200	70	"
26-31-891	Swift & Co.	1955	43'8"	61	70	Kmr
26-31-894	California Refining Co.			288	92	"
26-31-938	Second Reverse Terminal Inc.	1958	109'6"	168	150	Q

J. Geodetic Control Survey monuments described
Index Maps 30,31; adjacent Index Maps 25,26

MERCK & CO., INC.
126 EAST LINCOLN AVE.
RAHWAY/UNION COUNTY
NJ ID# 001317064

Merck & Co., Inc., headquartered in Rahway, New Jersey, is an international corporation involved in the business of developing and producing health care products. The Rahway site includes administration and research facilities, chemical production facilities, and product development and service facilities used in pharmaceutical and agricultural pesticide preparation. Approximately 3500 people are employed at the facility, which began operations in 1903. The 210 acre facility is situated in a metropolitan area and is bordered by residential and industrial areas of Rahway and Linden. Approximately one-half of the site is within the City of Rahway and the remainder is within the City of Linden. A small stream, Kings Creek, flows southeast through the facility to the Rahway River, which in turn flows east to the Arthur Kill.

Merck discharges stormwater runoff and non-contact cooling water to Kings Creek and the Rahway River under NJPDES DSW/SIU permit # NJ0002348. Process wastewater is discharged to the Linden-Roselle Sewage Authority (LRSA) and Rahway Valley Sewage Authority (RVSA) under this permit. Wastewater generated from pharmaceutical manufacturing, boiler blowdown, non-contact cooling water, animal health formulations, pesticide formulations, and sanitary wastewater is pretreated on-site prior to discharge to LRSA. Wastewater generated from research and pilot operations along with sanitary wastewater is discharged without treatment to RVSA. The final NJPDES/DSW permit was issued 5/14/86 for a term of 1 1/2 years in order to allow Merck time to collect data concerning the impact of its discharges on the surface water quality of Kings Creek and the Rahway River, and to submit a complete renewal application which must include several stormwater discharges from the site which are not currently permitted. The facility received an acceptable rating during a Compliance Evaluation Inspection conducted 11/7/85 and 11/14/85.

No specific information regarding the geology or direction of ground water flow directly underneath the facility could be found during the file search. There are no monitoring wells or production wells at the facility. However, in general, the Rahway area is underlain by approximately 30 feet of stratified drift deposits consisting of clay, sand, and gravel, and fractured bedrock of the Brunswick formation, with ground water at varying depths from 10 to 25 feet. Ground water movement in the Rahway area is toward the Rahway River and its branches, and through the valley extending from Rahway to the Arthur Kill. In relation to Merck, this would be in a south to southeast direction from the facility. The population of Rahway and Linden receive drinking water from the Rahway Water Department and the Elizabethtown Water Company, respectively. The Rahway Water Department obtains the majority of its water (over 90 percent) from the Rahway River and the remainder from several wells adjacent to the river, located approximately 1 mile west of the Merck facility.

The original RCRA part A and B permit application specified 29 container storage areas and 15 tank storage areas at the facility. Since that time, a number of these areas have been officially closed or are currently undergoing closure. In addition, some of the container storage areas were reclassified as 90-day accumulation areas and deleted from the application. A revised RCRA Part B application submitted 6/8/84 indicated 10 container storage areas and 10 tank storage areas at the facility. One of the tank storage areas, the wastewater pretreatment unit, was recently determined to be an Industrial Waste Management Facility (IWMF) subject to the NJPDES regulations of NJDEP/DWR, and will be deleted from the application.

A total of 53 Solid Waste Management Units were identified at the facility, 23 active units and 30 inactive units. Of the 23 active units, 19 are RCRA-regulated.

RCRA-regulated solid waste management units include 10 container storage areas and 9 tank storage areas. The 10 container storage areas can hold up to 3752 drums with maximum storage capacity of 206,360 gallons. The types of hazardous waste stored in containers include chlorinated and non-chlorinated spent solvents, still bottoms from solvent recovery, various reactive and corrosive wastes, discarded commercial chemicals, and waste oils. The 9 tank storage areas consist of a total of 25 tanks with maximum storage capacity of 215,000 gallons. The types of wastes stored in tanks include primarily chlorinated and non-chlorinated spent solvents, and waste oils. Two of these tank storage areas (4 tanks with capacity of 180,000 gallons) were recently constructed and began operation at the end of 1985. Another tank storage area (one 5,000-gallon tank) was recently taken out of service due to PCB contamination and will be replaced with another tank. All container and tank storage areas are equipped with secondary containment, and either have no drains or drains which lead directly to the chemical sewer and the on-site wastewater pretreatment unit. There are no records of any accidents or documented releases to the environment associated with the container and tank storage areas.

Non RCRA-regulated solid waste management units include 1 wastewater pretreatment unit, 1 trash incinerator, 2 pathological incinerators, 19 former container storage areas, 5 former underground tank storage areas, 3 landfill areas, 1 waste pile area, 1 solvent recycling area, and 1 underground pipe leak area. Units which are currently active include the wastewater pretreatment unit and the trash and pathological incinerators. The remainder of these units have either been left in place inactive, or have been physically removed.

The wastewater pretreatment unit consists of 3 storage tanks (300,000 gallons each) which store aqueous waste from process areas and waste handling drains, and 2 neutralization tanks (13,000 gallons each). The influent wastewater may be corrosive prior to neutralization and may contain low levels of raw materials, intermediates, and solvents used in processing. The unit was recently determined to be an Industrial Waste Management Facility (IWMF) subject to the NJPDES regulations. Effluent wastewater is discharged to LRSA under NJPDES DSW/SIU permit # NJ0002348. One of the storage tanks developed a leak from a corroded floor which was observed 7/1/84. The tank was immediately repaired but is still out of service. Soil samples taken in the area of the

leak indicated the presence of phenol (189.6 ppm), total dichlorobenzene(s) (114.9 ppm), total trichlorophenol(s) (72.7 ppm), total cresol(s) (35.2 ppm), and total xylene(s) (1.06 ppm).

The trash incinerator and 2 pathological incinerators have NJDEP air permits, and have had no major problems with compliance. The trash incinerator receives paper, non-hazardous pharmaceutical wastes, and pathological wastes, with capacity of 30 tons/8 hours. The unit was delisted as a RCRA unit in 1984; it formerly burned ignitable solvents as a fuel supplement to oil. The 2 pathological units (11'x7'x3') each receive pathological wastes and have been in operation since 1972.

The 19 former container storage areas received various solvents for recovery and still bottoms awaiting off-site disposal (F002, F003, F005). Many of these areas were in operation for the past 30 to 40 years. The majority of these areas were closed in 1984 in accordance with approved closure plans and the remainder were converted to 90-day accumulation areas, due to either consolidation/termination of process operations, or the fact that they could not meet current RCRA regulations due to lack of secondary containment. The majority of these areas are now paved over or covered with gravel. Although there is no evidence of releases to the environment from these units, the potential for soil contamination exists around these areas from past operations.

The 5 former underground tank storage areas were used to store chlorinated and non-chlorinated solvents (F002, F003, F005) for internal recovery or off-site disposal, and are identified as follows: (1) Tanks 852 and 853 (5,000 gallons each), (2) Tank 10M (10,000 gallons), (3) Tanks 103 and 104 (5,000 gallons each), (4) Building 73 tank farm (13 tanks with total capacity of 185,000 gallons), and (5) Building 69 tank farm (37 tanks with total capacity of 265,000 gallons). All of these areas were in operation from 1950 up until 1984 and were properly closed in accord with applicable regulations, except for the Building 69 tank farm which began operation in 1940 and was discontinued in 1977. Closure of all of the above areas, except for the Building 69 tank farm, was approved by NJDEP/DHWM/BHWE after closure requirements were certified by IT Corporation. All of the tanks in these areas have been removed from the ground. No NJDEP personnel were present during tank removal in any of these areas. The Building 69 tank farm failed a hydrostatic test, and soil in the area was shipped off-site for disposal at the time of excavation (no analytical data or soil analyses are available). Visible contamination of soil was evident in the area of Tanks 103 and 104 during tank removal. Soil samples were taken by Merck and results indicated the presence of benzene, chlorobenzene, ethyl benzene, chloroform, ortho-dichlorobenzene, toluene, tetrachloroethylene, trichloroethylene, and fuel oil. The concentration of the contaminants ranged from 54 to 3960 ppm. Approximately 100 cubic yards of soil was shipped off-site for disposal. No soil samples were taken in any of the other areas. During the site inspection conducted 10/30/86 by NJDEP/DHWM/BSA, elevated readings were detected at the soil headspace around the area of the Building 73 tank farm (10 ppm) and tanks 852 and 853 (20 ppm). All of the above areas are now either covered with gravel, or soil mixed with gravel. The potential for soil and ground water contamination exists in all of these areas.

The 3 landfills include 2 on-site areas and 1 area located approximately 1 mile southeast of the main facility property.

The 2 on-site landfill areas (each approximately 200' in diameter) are known as the Building 53 landfill and the North Plant landfill. The Building 53 landfill received various industrial debris, empty containers, and ash material, prior to 1960. Since that time, the material in the landfill was excavated and replaced with new fill material for a building which is now over the site. The North Plant landfill received miscellaneous pharmaceutical products and waste filter cakes prior to 1960, and is currently inactive. It is not known whether or not the waste disposed of in these areas would be considered a hazardous waste or hazardous waste constituent.

The other landfill which is not contiguous with the main facility property is known as the Range Rd. landfill. It is located approximately 1 mile southeast of the facility at the end of Range Rd. (off Lower Rd.) in Linden, and received various industrial waste materials including spent carbon, zinc, asbestos, and off-spec pharmaceutical products from 1960 to 1971. It is not known whether or not this waste would be considered a hazardous waste or hazardous waste constituent. The size of the property is approximately 21 acres, with 7 acres used for the landfill. It is located adjacent to the Rahway River and is bordered by an undeveloped area. A fence runs parallel to Range Rd. along the landfill area, however access to the site is possible because the fence does not surround the entire landfill. Vegetation is abundant throughout the site, and spent carbon was evident on the ground in some areas. The site was given a low priority in 1981 by the Division of Hazard Management because the site did not represent an imminent environmental or health hazard. The potential for ground water contamination exists in this area, and there is a potential for surface water contamination due to the proximity of the Rahway River. The site is not subject to the RCRA corrective action program because it is not part of the main facility property; it is being referred to NJDEP/DWR/BGWQC for any action which should be taken with regard to applicable state water pollution laws and regulations.

The waste pile area is located on top of the North Plant landfill, and has been used for the temporary storage of demolition and construction debris since 1980. The waste pile now consists mostly of excavated soil. Merck is currently using dumpsters to temporarily store demolition and construction debris which are generated at the facility.

The solvent recycling area consisted of 6 distillation units which were used for solvent recovery and reuse prior to 1977. The types of solvents handled in this area included chlorinated and non-chlorinated solvents (F002, F003, F005). This area was demolished during the late 1970's and is now covered with gravel.

The underground pipe leak area consists of a site where a release of industrial wastewater occurred from a leaking sewer line on 3/25/86. The sewer line is used to transfer industrial wastewater to the on-site pretreatment unit. The release occurred over a period of 24 hours before the leak was located and sealed. Merck personnel estimated that the quantity of release was less than 15 gallons per minute, which over a 24 hour period would amount to a quantity of up to about 20,000 gallons. The release entered Kings Creek through cracks in the walls of a pipe which houses the creek near this location. Water samples taken in Kings Creek indicated the presence of benzene (25,000 ppb), methylene chloride (20,900 ppb), chlorobenzene (14,050 ppb), chloroform (430 ppb), vinyl chloride (408 ppb), 1,1,1-trichloroethane (181 ppb), and trichloroethylene (223 ppb). The potential for soil and ground water contamination exists in the vicinity of the leak area. A monitoring program has been set up whereby Kings Creek is inspected at least once per day for discoloration, sheen, PH, or unusual odor for early detection of uncontrollable discharges into the creek.

There have been numerous incidents of releases to the environment from the routine operation of the facility over the last 10-15 years in the form of various discharges, leaks, spills, and air emissions.

EPA issued an Administrative Order to Merck on 10/25/77 for contaminated discharges to Kings Creek and numerous spill events involving ortho-dichlorobenzene, hydraulic fluid, sodium thiocyanate, cobalt catalyst, ammonia, and thiabendazole (TBZ).

Merck has been implicated as being one of the sources responsible for odor problems (characterized as cat urine odors) over Staten Island since 1979. A study conducted by the New York Department of Environmental Conservation (NYDEC) over the period 1979 to 1982 concluded that Merck was the source of cat urine odor emissions through accidental spills, equipment maintenance, and untreated wastewater releases. In addition to the NYDEC, the NJDEP, the Interstate Sanitation Commission (ISC), the USEPA, and the Middlesex County Health Department have become involved in the matter. The thiabendazole (TBZ) manufacturing process at Merck generates low boiler waste which was identified as the source of the cat urine odor problem. Wastewater from this process is directed to the on-site pretreatment unit which discharges to the Linden-Roselle Sewage Authority. Carbon disulfide is the primary constituent of the low boiler waste and was believed to be the source of the odor problems. The Middlesex County Health Department issued numerous Notices of Violation to Merck during the period 1980 to 1986 for emissions from the TBZ/low boiler effluent. An Administrative Consent Order was recently issued by NJDEP/DEQ Metro Regional Enforcement for releases of air contaminants from the TBZ process on 1/3/86. Merck discontinued discharge of TBZ/low boiler wastes to LRSA on 1/8/86 and is now shipping the waste off-site for disposal.

The Middlesex County Health Department issued several Notices of Violation for excessive black smoke emissions from the trash incinerator during 1980 and 1981. Other Notices of Violations were issued during the past 5 years for TBZ/low boiler emissions, a release of hydrochloric acid vapors, and several monochloroacetone releases from a distillation unit.

NJDEP/DEQ Metro Regional Enforcement issued Notices of Prosecution for monochloroacetone releases (11/29/84 and 12/14/84) and cat urine odor emissions (8/19/83). Administrative orders were issued for air releases of benzene product from a storage tank (8/15/85) and TBZ process effluent emissions (1/3/86).

NJDEP/DHWM Metro Regional Enforcement has records of several recent spill events which have occurred at the facility. On 8/9/85, a release of 1200 gallons of 98% of sulfuric acid occurred from a leaking underground storage tank. The leak was immediately neutralized and the tank was taken out of service. On 6/13/86, a 2-gallon spill of carbon disulfide occurred onto a gravel area during product transfer from a leak in a line from a tank car to a product tank. A Notice of Violation was issued for the solvent release into Kings Creek which occurred on 3/25/86 from a leaking underground sewer line. An Administrative order was also issued for the underground sewer line leak by NJDEP/DWR/Metro Regional Enforcement.

FINDINGS

- (1) There has been documented contamination of soil and surface water (Kings Creek) at the facility, and the potential for ground water contamination exists from various spill and leak events and past waste disposal practices. Process emissions at the facility have resulted in numerous air releases and odor problems.
- (2) Soil in the vicinity of the wastewater pretreatment unit is contaminated with phenol, dichlorobenzene, trichlorophenol, cresol, and xylene.
- (3) Soil and ground water in the vicinity of the underground sewer pipe leak area are potentially contaminated with organic solvents from a release which occurred 3/25/86. Water samples taken from nearby Kings Creek indicated the following compounds were present in the discharge: benzene, methylene chloride, chlorobenzene, 1,2-dichlorobenzene, carbon tetrachloride, chloroform, vinyl chloride, 1,1,1-trichloroethane, and trichloroethylene.
- (4) Soil and ground water in the vicinity of the 5 former underground tank storage areas are potentially contaminated with chlorinated and non-chlorinated solvents.
- (5) RCRA-regulated solid waste management units include 10 container storage areas and 9 tank storage areas. There have been no documented releases to the environment associated with these units. The potential for releases to the environment is low due to facility design and management practices.

- (6) Active, non RCRA-regulated solid waste management units include 1 wastewater pretreatment unit, 1 trash incinerator, and 2 pathological incinerators. A leak from one of the wastewater storage tanks was observed 7/1/84 and resulted in soil contamination (discussed in Finding # 2). The wastewater pretreatment unit effluent discharge to Linden-Roselle Sewage Authority is permitted under NJPDES #NJ0002348. The trash and pathological incinerators have NJDEP air permits, and have had no major problems with compliance.
- (7) Inactive non-RCRA-regulated solid waste management units include 19 former container storage areas, 5 former underground tank storage areas, 3 landfills, 1 waste pile, 1 solvent recycling area, and the underground sewer pipe leak area. The majority of these units have either been left in place inactive or have been physically removed. The greatest potential for soil and/or ground water contamination exists in the following areas: the 5 former underground tank storage areas, the North Plant landfill, the underground sewer pipe leak area, and the Range Rd. landfill.
- (8) Numerous documented releases to Kings Creek have occurred at the facility, mostly involving organic solvents as a result of spill and leak incidents. The impact of the facility on Kings Creek and the Rahway River is being addressed in the NJPDES permit. The final NJPDES/DSW permit was issued 5/14/86 for a period of 1 1/2 years to allow Merck time to collect data concerning the impact of the facility on Kings Creek and Rahway River, and to submit a complete renewal application which must include several stormwater discharges from the site which are not currently permitted.

RECOMMENDATIONS

A remedial investigation is recommended due to the documented contamination of soil and surface water and the potential for ground water contamination at the facility. The investigation should include a study to characterize ground water conditions and flow direction beneath the facility, and address whether or not a significant increase in pollutants is occurring in the ground water beneath the facility, as well as any migration of pollutants beyond the facility boundary. In addition, an investigation should be conducted to characterize the nature and extent of soil and/or ground water contamination at or emanating from the following solid waste management units: the wastewater pretreatment unit, the North Plant landfill, the underground sewer pipe leak area, and the 5 former underground tank storage areas. The remedial investigation will be incorporated into the NJPDES permit program under the direction of NJDEP/DWR/BGWQC.

M E M O R A N D U M

TO: Merck & Co., Inc. File

FROM: E. Gaven, HSMS IV

SUBJECT: Site Inspection conducted October 30, 1986 by NJDEP/DHWM/BSA

On October 30, 1986 Deborah Mazur, Bob Raisch and the writer conducted an inspection of Merck & Co, Inc., Rahway, New Jersey. We met with Teresa Jones, Environmental Control Superintendent, and Tom Puchalski, former Environmental Control Manager at the Rahway facility (now with Merck's corporate environmental group).

The solid waste management units identified in the RCRA Facility Assessment file review were inspected. In addition, ambient air and soil gas monitoring were conducted during the inspection with an "H-nu" brand photoionization detector.

The RCRA regulated container storage and tank storage areas appeared to have adequate secondary containment, and either have no drains or drains which lead directly to the chemical sewer and the on-site pretreatment unit.

The north plant landfill is covered with soil and gravel and most of the area is overlain by the waste pile area which consists mostly of soil from on-site demolition/construction. Soil gas monitoring was not possible in this area because the soil probe was unable to penetrate the soil/gravel surface. However, the area was monitored at the soil surface and no levels above background were encountered. Also, there were no unusual odors evident around this area.

The five former underground tank storage areas are identified as follows:

1. Tanks 852 and 853
2. Tank 10M
3. Tanks 103 and 104
4. Building 73 tank farm
5. Building 69 tank farm

Soil headspace gas monitoring was not possible in three of these areas, Tank 10M, Tanks 103 and 104, and the Building 69 tank farm, due to the surface of the ground which was covered with gravel or gravel mixed with soil. The remaining two areas, Tanks 852 and 853, and the Building 73 tank farm were surveyed at the soil headspace and levels of up to 20 ppm and 10 ppm respectively, were detected. The soil probe was only able to penetrate to a depth of less than one foot in these two areas.

ATTACHMENT ~~1~~ 5-1

The former waste recycling area is now covered with gravel, and the majority of the former container storage areas are either covered with gravel or paved over. Soil gas monitoring was not possible in these areas. The ground surface above the underground sewer pipe leak area is covered with gravel and partially paved over so soil gas monitoring was not possible in this area either.

The Range Road landfill is located approximately one mile southeast of the main facility property at the end of Range Road, Linden, New Jersey. The 21 acre property is fenced in and located adjacent to the Rahway River and is bordered by a relatively undeveloped area. The size of the area which was used as the landfill is approximately seven acres, and most of the area is covered with vegetation (mostly grasses with scattered trees). The landfill received various industrial waste materials including spent carbon, zinc, asbestos, and off-site pharmaceutical products between 1960 and 1971. The area was surveyed at the soil headspace and levels of up to 3 ppm were detected. There were no unusual odors noticed around the site during the inspection.

Miscellaneous information

6/6/88

① NJDEP/ BSDW 2-5550 (Nasir Butt)

pop. served by Rahway Water Dept ~ 30,000

Five wells : well #6 still in use

other 4 wells - not in service due to contamination (mainly PCE)

② Rahway Water Dept. 201-388-0086 (Mike Revatis)

well #6 ~ 250' deep

other 4 wells ~ 40-120' deep

③ Population info (Town Clerk Office)

Rahway (201-388-8000) 26,723

Linden (201-474-8445) 37,836

Roselle (201-245-5600) 22,600

Clark (201-388-3600) 16,500

1 mile radius : $\frac{1}{2}$ of Rahway : 13,360 } 23,000
 $\frac{1}{4}$ of Linden : 9459 }

2 miles radius : all of Rahway : 26,723 } 45,641
 $\frac{1}{2}$ Linden : 18,918 }

3 miles radius : all of Rahway : 26,723 }
all of Linden : 37,836 } 88,191
 $\frac{1}{2}$ Clark : 8,250 }
 $\frac{1}{2}$ Roselle : 11,300 }

ACTUAL

Facility Name: MERCK & CO. INC.

Location: 126 EAST LINCOLN AVE. RAHWAY, NJ

EPA Region: II

Person(s) in Charge of the Facility: _____

Name of Reviewer: Ed Haven Date: 6/7/88

General Description of the Facility:

(For example: landfill, surface impoundment, pile, container;
types of hazardous substances; location of the facility;
contamination route of major concern; types of information
needed for rating; agency action, etc.)

Scores: $S_M = 30.33$ ($S_{gw} = 51.80$ $S_{sw} = 8.39$ $S_a = 0$)

$S_{FE} =$

$S_{DC} =$

HRS COVER SHEET

GROUND WATER ROUTE WORK SHEET						
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)	
1 Observed Release	0 45	1	0	45	3.1	
If observed release is given a score of 45, proceed to line 4 . If observed release is given a score of 0, proceed to line 2 .						
2 Route Characteristics					3.2	
Depth to Aquifer of Concern	0 1 2 3	2	4	6		
Net Precipitation	0 1 2 3	1	2	3		
Permeability of the Unsaturated Zone	0 1 2 3	1	2	3		
Physical State	0 1 2 3	1	3	3		
Total Route Characteristics Score			11	15		
3 Containment	0 1 2 3	1	3	3	3.3	
4 Waste Characteristics					3.4	
Toxicity/Persistence	0 3 6 9 12 15 18	1	18	18		
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1	7	8		
Total Waste Characteristics Score			25	26		
5 Targets					3.5	
Ground Water Use	0 1 2 3	3	6	9		
Distance to Nearest Well/Population Served	0 4 8 12 16 18 20 24 30 32 35 40	1	30	40		
Total Targets Score			36	49		
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5			29,700	57,330		
7 Divide line 6 by 57,330 and multiply by 100 $S_{gw} = 51.60$						

SURFACE WATER ROUTE WORK SHEET						
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)	
1 Observed Release	0 45	1	0	45	4.1	
If observed release is given a value of 45, proceed to line 4 . If observed release is given a value of 0, proceed to line 2 .						
2 Route Characteristics					4.2	
Facility Slope and Intervening Terrain	0 1 2 3	1	0	3		
1-yr. 24-hr. Rainfall	0 1 2 3	1	2	3		
Distance to Nearest Surface Water	0 1 2 3	2	4	6		
Physical State	0 1 2 3	1	3	3		
Total Route Characteristics Score			9	15		
3 Containment	0 1 2 3	1	3	3	4.3	
4 Waste Characteristics					4.4	
Toxicity/Persistence	0 3 6 9 12 15 18	1	18	18		
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1	7	8		
Total Waste Characteristics Score			25	26		
5 Targets					4.5	
Surface Water Use	0 1 2 3	3	6	9		
Distance to a Sensitive Environment	0 1 2 3	2	2	6		
Population Served/Distance to Water Intake Downstream	0 4 6 8 10 12 16 18 20 24 30 32 35 40	1	0	40		
Total Targets Score			8	55		
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5			5400	64,350		
7 Divide line 6 by 64,350 and multiply by 100 $S_{sw} = 8.39$						

AIR ROUTE WORK SHEET						
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)	
1 Observed Release	0 45	1	0	45	5.1	
Date and Location:						
Sampling Protocol:						
If line 1 is 0, the S = 0. Enter on line 5 . If line 1 is 45, then proceed to line 2 .						
2 Waste Characteristics					5.2	
Reactivity and Incompatibility	0 1 2 3	1		3		
Toxicity	0 1 2 3	3		9		
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1		8		
Total Waste Characteristics Score				20		
3 Targets					5.3	
Population Within 4-Mile Radius	0 9 12 15 18 21 24 27 30	1		30		
Distance to Sensitive Environment	0 1 2 3	2		6		
Land Use	0 1 2 3	1		3		
Total Targets Score				39		
4 Multiply 1 x 2 x 3			0	35,100		
5 Divide line 4 by 35,100 and multiply by 100 $S_a = 0$						

	s	s ²
Groundwater Route Score (S _{gw})	51.80	2683.24
Surface Water Route Score (S _{sw})	8.39	70.39
Air Route Score (S _a)	0	0
$S_{gw}^2 + S_{sw}^2 + S_a^2$		2753.63
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$		52.47
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2} / 1.73$		S _M = 30.33

WORKSHEET FOR COMPUTING S_M